Encyclopædia
of Wild Medicinal Plants in Egypt

2

Capparis spinosa
Capparis sinaica
Cyperus rotundus
Acacia nilotica
Origanum syriacum

MINISTRY OF STATE FOR ENVIRONMENTAL AFFAIRS
Project for the Conservation and Sustainable Use of Medicinal Plants in Arid and Semi-arid Ecosystems in Egypt
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FOREWORD

The appearance of the first volume in this encyclopædia encouraged us to continue issuing of further volumes. As mentioned in our foreword to the first volume, it is difficult to have all monographs at the same time. Again, we state that it is difficult to arrange the available monographs according to definite criteria. The available ones are those dealing with *Capparis spinosa*, *C. sinaica, Cyperus rotundus, Acacia nilotica* and *Origanmum syriacum* var *sinaicum*. These species are among the important plants used in folk medicine in Egypt and other Arab countries.

It is interesting to mention that the four species were mentioned about one thousand years ago by **Ibn al-Jazzar al-Quairawani** (died 389 Hj, 1005 A.D.) in his book *AlEatemad Fi Al Adwyiah AlMofradah* (The Credited in Simple Drugs الاعتماد في الأدوية المفردة). This book contains 272 drugs, mainly of plant origin, and has been translated to Greek, Latin and Hebrew. We find it important to have quotations from a copy of the manuscript of the book of **Ibn Al Jazzar.** about these plants We shall show parts of the manuscript of this book dealing with the four species given in this volume of the encyclopædia.

Capparis spinosa has a particular situation as it comprises four subspecies growing in different habitats in Egypt. The subspecies *inermis* is the plant cultivated in some Mediterranean countries for its flower buds or fruits used in food preparations. The species has been mentioned by Moslem scholars for treating different diseases. It has been given by **Ibn al-Beitar** (died 646 Hj, 1248 A.D.) in his monumental work *"Gamie Ai Adwiyah wal Aghzia"* for liver treatment. It is to be noted that different organs of this plant are used, e.g. the leaves, flower buds, flowers, fruits and bark of the root.

The part of the manuscript of the book of **Ibn al-Jazzar** about *Capparis* (caper كبار) describes the plant showing that its name in Greek is ***Kypros***, and grows in deserts. He gives the

morphological description of the leaves, flowers, fruits and seeds. He continued in describing the uses of the plant.

القول في الكبر

وهو الاصف وهو القبار ويسمى بالرومية [illegible] وهو شجرة [illegible] على الارض
دراعين او [illegible] تنبت في الصحرا وله قضبان [illegible] خضر وحمر وله ورق
اخضر مدور وله نوار ابيض [illegible] في غلاف يشبه غلاف الورد [illegible]
الغلاف وتخلفه ثمرة [illegible] يشبه بالزيتون في شكله اذا
[illegible] ظهر منه زهر ابيض واذا [illegible] الزهر [illegible]
اذا [illegible] ظهر منه [illegible] الرمان صغار احمر والمستعمل من هذه الشجرة
عروقها وورقها ونوارها [illegible] وورقها ونوارها في [illegible]
[illegible] واصل هذا العقار [illegible] حار يابس في الدرجة الثالثة

Perhaps the earliest in use is *Acacia nilotica*, a species which was very common in the Nile Valley and the Delta. It is the *sunt* tree, which grew in Egypt from remote times, and was utilised by the ancient Egyptians, earlier than the age of the pyramids, in making furniture, mummy cases and statues. Its Arabic name *sunt* closely resembles the ancient Egyptian *shent* and the Coptic *shonte*. The ancient Egyptians extracted a gum from this tree calling it *kami*, a name adopted by the Greeks, and later by the European languages: gum, gomme, etc.

The plant was mentioned by **Dioscorides** in his Materia Medica as the Egyptian *Akakia* or the Egyptian thorn. It is known among the Moslem scholars later as *"Al Akakia Al Misriyah"*.

The part of the manuscript of the book of **Ibn al-Jazzar** about *Acacia* identified the drug as Akakia أقاقيا. **Ibn al-Jazzar** states that it is only in Egypt and is called the Egyptian thorn الشوكة المصرية. He describes the tree, its organs in a very good scientific way. He

shows the uses of the fruit and how the decoction is prepared from the fruits.

القول في الاقاقيا

الاقاقيا يعمل بمصر من ثمر وهو ثمر القرظ ويسمونها بسمي الشوكة المصرية
وورقها يعرف بالقرظ والشجرة في جملتها عظيمة لها شوك كبير غزير صلب
سريل الساض في طول الشوكة مقدار عقدا واقل قليلا ولها زهر ابيض ويثمر ثمرا
مدورة مسطوح مثل الحب الترمس الصغار وهو في داخل غلف على حكاية
حب الخروب الكائن في غلف الخروب وبها يدبغون اهل مصر الجلود فاذا
جمعت هذه الثمار مع الورق المعروف بالقرظ تجعل في اناء ويصب عليها
شي من ماء بقدر ما يغمرها ثم يطبخ حتى ينضج الورق والثمرة ثم يصفى منه
الحشيش ثم يعاد الماء على النار ويطبخ حتى ينعقد ثم يصب في قوالب صغار لشبه
الحجارة ويترك حتى يجف فهو المستعمل وعصارة هذه الثمرة المعروفة بالاقاقيا

Regards *Origanum syriacum*, we have an endemic variety in Egypt, i.e. var. *sinaicum*. It is to be noted that the species is a Mediterranean one, and it has been used since millennia. It could be the Biblical Hyssop.

Ibn al-Jazzar mentioned this plant in his book. It is expected that it is one of the different species of *Origanum*. The name *Marw* المرو is an Arabic name given to the plant in the Levant and Sinai. We give below what has been written about the *Marw* by **Ibn al-Jazzar**. It is interesting to see that **Ibn al-Jazzar** mentioned that this plants is a plant of the Mints الأحباق , Mint family. We see how far this Moslem Scholar was aware of the resemblance of *Origanum* with Mints. According to modern taxonomical studies both mint and *Orginanum* belong to the same family; Labiatae or Mint family.

Cyperus rotundus, though a cosmopolitan weed, it has a special status in Egypt. Its compact tuberous rhizome is edible. It is among the plants mentioned by Ancient Egyptians, as a plant used in medicine. Its use in folk medicine for urinary tracts may refer to its old use by the Pharaohs, perhaps for the treatment of Bilharziasis.

Ibn al-jazzar mentioned this plant in his book. One sees that he gives his name in Greek as *Cyprus*. He gave a good description of its habitat and its morphology. He defines the part used as the underground parts (compressed tuberous rhizome) and their uses for treating different disease.

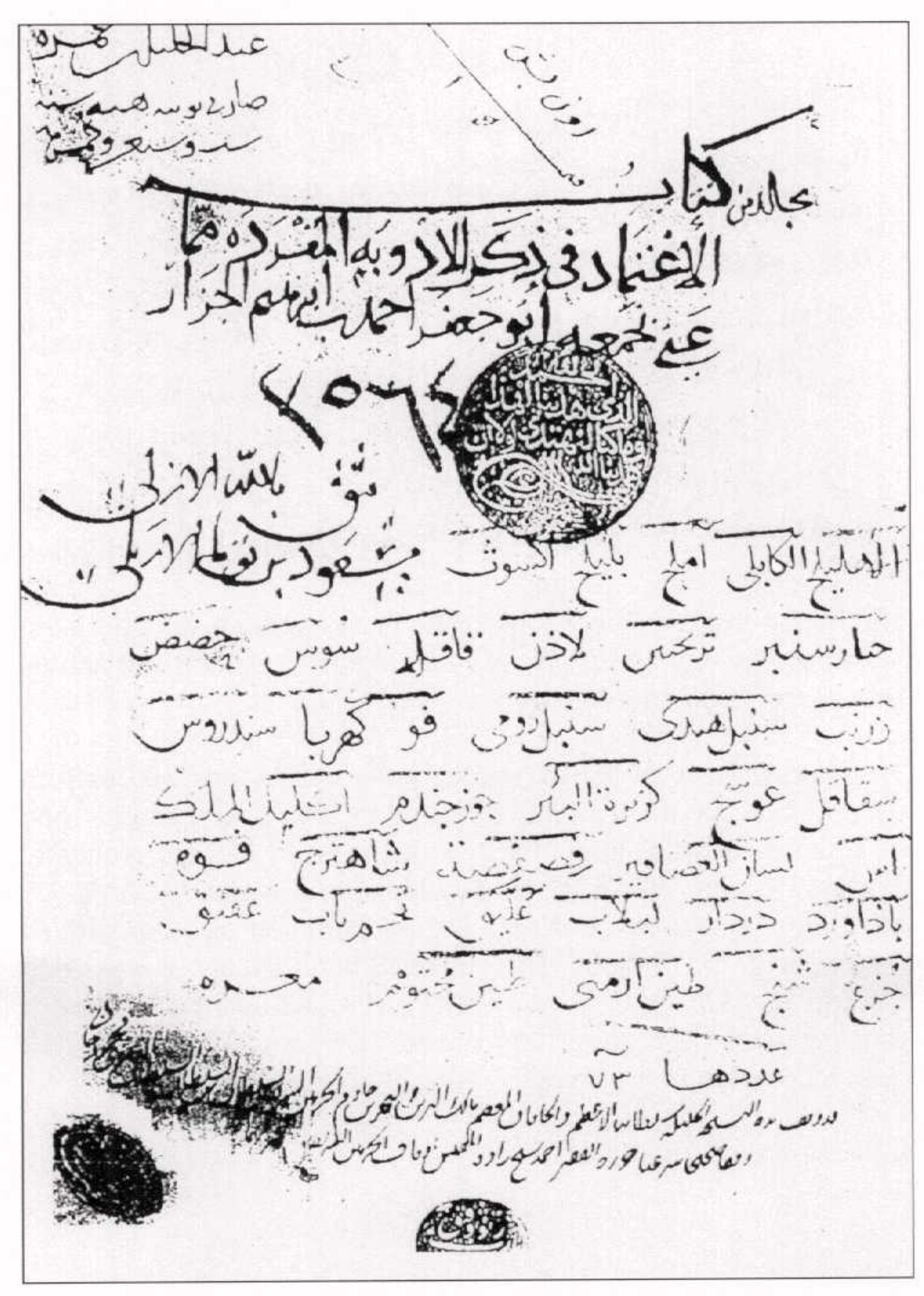
The project for Conservation and Sustainable Use of Wild Medicinal Plants is looking to make use of the wild medicinal plants through their use in pharmaceutical industry. The project is envisaging to support the establishment of standardization schemes for the used drugs. This might support the prescription of these drugs by doctors and physicians, or to be included in the curricula of the Faculty of Medicine.

It is hoped that the knowledge given in this volume will be a step towards the conservation of the indigenous and traditional knowledge about the medicinal plants.

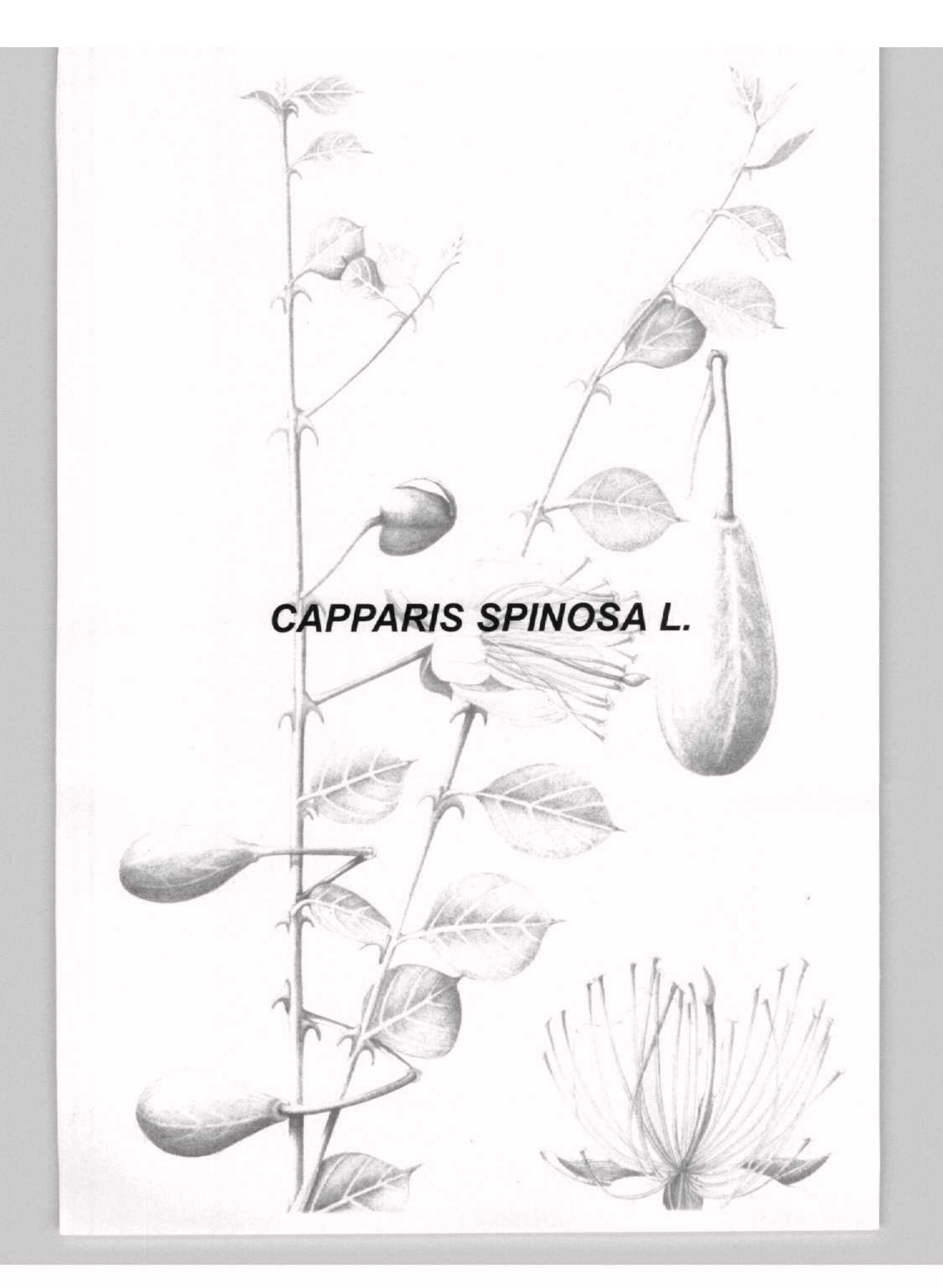
The appearance of these monographs would not be realized except through the continuous support of many persons and institutions. To all of them I wish to express my sincere gratitude. Special thanks are due to Dr. Mostafa Fouda (EEAA), Dr. Mohamed Bayoumi (UNDP), Dr. Mohammed El Demerdash (Manager of the Project), Dr. Khaled Shams (National Research Centre) and Dr. Omar Abdel Dayem (Project Technical Officer). Sincere thanks are due to the donors (GEF and UNDP) for their generous funds to the project.

Giza, February 15, 2006

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صورة غلاف مخطوط كتاب "الاعتماد في الأدوية المفردة"
تأليف: أبو جعفر أحمد بن ابراهيم بن أبي خالد الجزار
المتوفى سنة ٣٦٩ هـ - ١٠٠٥ م



CAPPARIS SPINOSA L.

CAPPARIS SPINOSA L.

Lasaf **اللصف**



Capparis spinosa L. *var. inermis*



Capparis spinosa var *canescens*

Capparis spinosa L., Sp. Pl., ed. 1,503 (1753).

Four varieties occur in Egypt:

var. ***spinosa:***

Syns.

Capparis aegyptia Lam., Encycl. 1:605(1785).

Capparis spinosa L. var. aegyptia (Lam.)Boiss., Fl. Orient.1:420(1867).

var.***canescens*** Coss., Notes Pl. Nouv., Fasc. 2:28(1849).

Syns.

Capparis ovata Desf., Fl. Atlant. 1:404(1798).

Capparis sicula Duh., Traite` Arbr., ed. 2, 1:159(1801).

Capparis leucophylla DC., *Prodr.* 1:246(1824).

Capparis ovata var. *palestina Zohary*, Bull. Res. Counc. Israel D, 8:56(1960).

Capparis ovata Desf., var. *canescens* (Coss.) Heywood, Feddes Repert. 69:56(1964).

var. ***inermis*** Turra, Fl. Ital. Prodr. 65(1780).

Syns.

Capparis orientalis Duh., Traite` Arbr., ed. 2, 1:142(1801).

Capparis rupestris Sibth. &Sm., Fl. Graec. Prodr.1:355(1809)

Capparis spinosa L. var. *rupestris* (Sibth. &Sm.) Viv., Fl. Libyc. Spec. 26(1824).

Capparis spinosa L. subsp.*orientalis* (Duh.) Jafri in Ali & Jafri, Libya 12:3(1977).

var. ***deserti*** Zohary, Bull. Res. Council Israel D, 8:54(1960).
Syns.

Capparis deserti (Zohary) Täckh. & Boulos, Publ. Cairo Univ. Herb. 5:14(1974).

Names

Caper and its relatives in several European tongues can be traced back to the Greek kápparis, whose origin (as that of the plant) is probably West or Central Asia. The botanical species name spinosa "thorny" refers to the many sharp thorns of the plant, which are, though, missing in some cultivers. The prefix al- in Iberic names (Portuguese alcaparra, Spanish alcaparrón) derives from the Arabic article el or al, which got affixed to many terms of lore, medicine and astronomy (e.g., alchemy or algebra).

Arabic: Kabbar, Akbar, Assaf, Shafallah, Lasaf — كبار، اكبار، أصف، شفلح، لصف، ليصوف (في سيناء)

English: Caper-bush, Caper, Caperberry

French: C,per, Caprier commun, C,pres, Fabagelle, Tapana, Caprier epineux.

German: Echter Kappernstrauch, Kapper.

Morphological Description

Caper plants are small shrubs (30-80 cm), and may reach about one meter upright. However, uncultivated caper plants are more often seen hanging, draped and sprawling as they scramble over ground and rocks. It is extremely resistant to drought, with a bush whose branches partly hang down and trail along the ground. Numerous woody stems arise from the root collar with procumbent or pendulous branches. Caper stems have tiny thorns, serpent-like when young, dry and brittle when old. Leaves are grayish-green, simple and thick, variable in texture, 1-4.5 X 0.5-4 cm, orbicular to elliptic, base rounded and apex mucronate. They are oval or sub-rotund, leathery and shiny green, fleshy, blunt and sometimes indented at the tip. Leaves are born on short petioles with 2 tiny stipules at the base. The leaf margins are entire. Leaf stipules may be formed into spines.

Flowers are born on first year branches. They appear from March to June. The flowers bloom for 24 hours then die. The pink-tinged, bisexual white flowers are born on a pedicel that emerges from the axil of the upper leaves. They are large, white, reddish or tinged with lilac and short-lived. They are solitary on pedicels 1.5-5 cm. The calyx and the corolla are respectively 4-sepalled and 4-petalled. Sepals are subequal 1-2 cm. Petals 1-2.5 X 0.5-1.5 cm, subequal, white, obovate and its anther

filaments are purple and are longer than the petals. There are many stamens with thread-like violet filaments. The fruit is a globose berry that is green when young, ripening to red. It is elongated, 3-5 cm long, 1-1.5 cm in diameter. Fruits contain 200-300 blackish, kidney-shaped seeds. The seeds are 3-4 mm in diameter, numerous, smooth and brown.

var. ***spinosa:***

Plant glabrous; stipules often spinose; filaments of stamen pink; fruit 2.5-5.5 x 2.5-4 cm.
Oases, Deserts, Sinai: cliffs, rocky slopes, desert wadis.



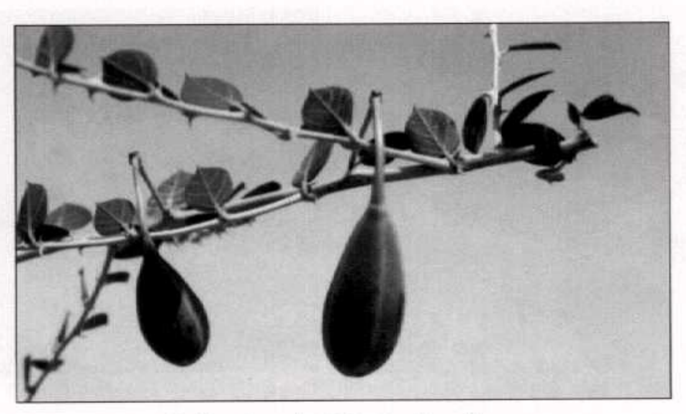
A branch of ***Capparis spinosa*** var. ***spinosa***

var. ***canescens***

Plant grayish-green, canescent. Branches (especially the young ones) often tomentose; leaves rather small, about 1.5-4 cm long, ovate or elliptical, spine-tipped; stipules often spinose, stipular spines usually stout, falcate.filaments of stamens white; fruit 2.5-3x 1.5-2 cm.
Oases, Eastern Desert, Sinai: stony desert wadis and plains.



Fruiting branch of ***Capparis spinosa*** var ***canescens***

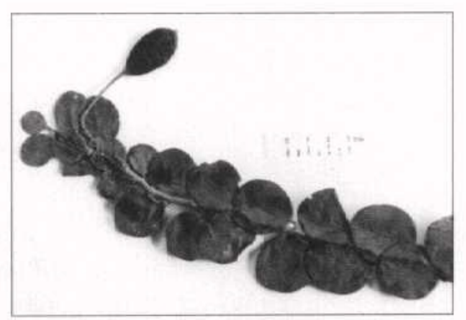


Fruiting branch of ***Capparis spinosa***

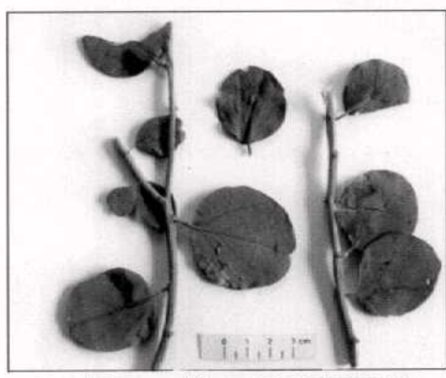
var. ***inermis***

Leaves large, 3-4.5 cm wide, orbicular, thick (almost succulent); stipules up to 2 mm, setaceous, inconspicuous; flowers large, 4-5.5 cm diam.

Known from all other parts of the Mediterranean region and from southern Europe.



A fruiting branch of ***Capparis spinosa*** var. ***inermis***



Broad leaves of ***Capparis spinosa*** var. ***inermis***

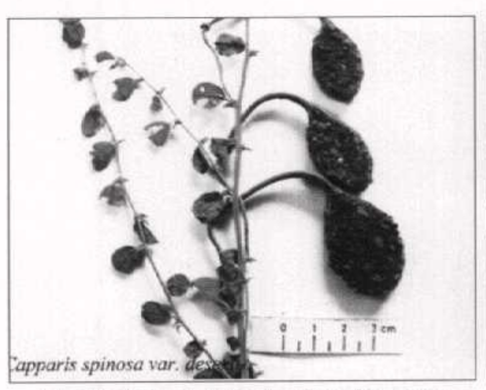


Flowering branch of ***Cappparis spinosa*** var. ***inermis***

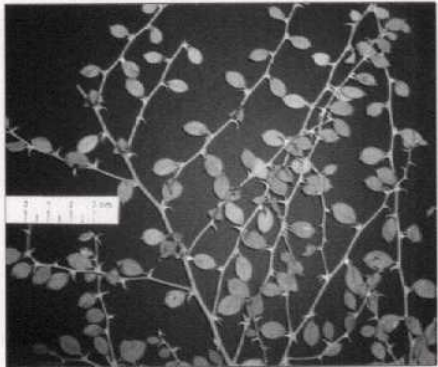
var. ***deserti***

Leaves small, 1-1.5 cm wide, orbicular, glabrous, spine-tipped; stipular spines patent, yellow; stems prostrate.

Western Desert (Libyan Desert) North of Siwa Oasis: alluvial desert plains.



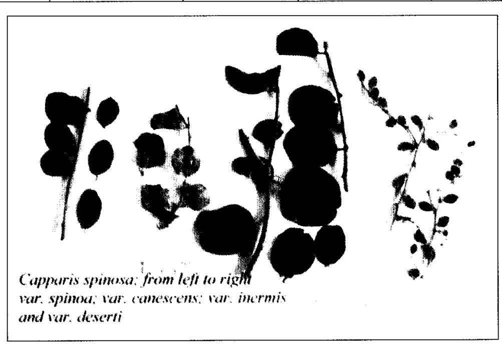
A fruiting branch of ***Capparis spinosa*** var ***deserti***



A branch of ***Capparis spinosa*** var. ***deserti***

The morphological diagnostic characteristics of the different varieties of *Capparis spinosa*

Character	var. spinosa	var. canescens	var. inermis	var. deserti
Leaf surface	glabrous	canescent	glabrous	glabrous
Leaf size	2-3 cm, round-ovate	1.5- 4 cm	3-4.5 cm- round, subc-ordate at base	1-1.5 cm
Leaf thickness	hardly or not thickish	moderate	thick, succulent	thin
Leaf tip	often acutish	spine-tipped	rounded	spine-tipped
Stipular spines	spinose, prominent, persistent	stout, falcate	setaceous, inconspicuous, weak	patent, yellow
Habit	hanging	hanging	hanging-sprawling	sprawling, prostrate
Habitat	limestone rocky cliffs	rocky cliffs	maritime cliffs	alluvial coarse sand plains



Leaves of the four varieties of ***Capparis spinosa*** in Egypt

Geographical Distribution

Local

Deserts, Oases, and Sinai (Saint Cathreine).

Regional

All North African countries, Arabia (Jordan, Palestine, Saudi Arabia, Qatar, United Arab Emirates, Bahrain, Kuwait, Yemen, Oman), the Levant, Mediterranean countries, Iraq, Turkey, and Iran.

Global

Widespread, especially in Mediterranean countries and the Arabian Peninsula. Area of the species: Mediterranean region, West and Central Asia to Afghanistan and India. In Africa, from the Mediterranean region till Central Sahara. Southern Europe (France and Italy).

Ecology

The plant is a chasmophyte under-shrub that grows in compact fine-textured soil as well as on steep cliffs and on the sloping rock crevices.

Capparis spinosa grows spontaneously in cracks and crevices of rocks and stone walls and in steep cliffs, rocky slopes and desert wadis. Plants grow well in nutrient poor sharply-drained gravelly soils. Mature plants develop large extensive root systems that penetrate deeply into the earth.

Capers are salt tolerant and flourish along shores within sea-spray zones. They are also wind-tolerant. The Caper's vegetative canopy covers soil surfaces which helps to conserve soil water reserves.

Capparis spinosa var. *inermis*; a slow growing perennial shrub; is cultivated for production of capers. Even though slow and difficult to germinate it grow in very dry warm climate. Dry heat and intense sunlight make the preferred environment for caper plants to give the best results. Plants survive summertime temperatures higher that 40°C. However, caper is a cold tender plant and has a temperature hardiness range similar to the olive tree (-8°C).

Status

Since the species, including all its varieties, is subjected to severe disturbance so, there is a great need to conserve the various subspecies. In addition to in *situ* conservation, there is a great need for ex *situ* conservation by cultivating the different varieties.

Propagation

Plants are grown from seed and by vegetative cuttings.

From seeds:

Caper seeds are miniscule and are slow to nurture into transplantable seedlings. Fresh caper seeds germinate readily - but only in low percentages. Dried seeds become dormant and are notably difficult to germinate and therefore require extra measures to grow. Dried seeds should be initially immersed in warm water (40°C or 105°F) and then let soak for 1 day. Seeds should be wrapped in a moist cloth, placed in a sealed glass jar and kept in the refrigerator for 2 - 3 months. After refrigeration, soak the seeds again in warm water overnight. Plant the seeds about 1 cm deep in a loose well drained soil media. Young caper plants can be grown in a greenhouse (preferable minimum temperature of 10°C or 50°F).

Stem cuttings:

Collect cuttings in February, March or April. Use stems from the basal portions, greater than 1 cm diameter and 8 cm in length with 6-10 buds. Use a loose well drained media with bottom heat. A dip in a IBA solution of 1.5 to 3.0 ppm is recommended (15 seconds). A 70% rooting percentage would be considered good.

Production Practices:

Transplanting is carried out during the wet winter and spring periods, and first-year plants are mulched with stones. In Italy, plants are spaced 2 to 2.5 meters apart (depending on the roughness of the topography; about 2,000 plants per hectare). A full yield is expected in 3 to 4 years. Plants are pruned back in winter to remove dead wood and water sprouts. Pruning is crucial to high production. Heavy branch pruning is necessary, as flower buds arise on one year old branches. Three year old plants will yield 1 to 3 kilograms of caper flower buds per plant. Grown from seed, in California caper bushes reportedly begin to flower in the fourth year, however Italian sources report some flowering from first year transplants. Caper plantings will last 20 to 30 years.

Harvesting:

The unopened flower buds should be picked on dry days. Harvesting is carried out regularly throughout the growing season. In Southern Italy, caper flower buds are collected by hand about every 8 to 12 days, resulting in 9 -12 harvest times per season.

Storage:

The plant is packed in large sacs of jute or cotton and ranked onto wooden tables in dry and dark places. The place should have good ventilation system and must be away from insects and rodents.

Chemical Constituents

The crude extract of the flower buds contains 162 **volatile constituents** of which **isothiocyanates, thiocyanates, sulphides and their oxidative products** have been identified as the major components.

The root contains **glucoiberin, sinigrin, glucobrassicin, neoglucobrassicin and 4-methoxy-glucobrassicin.** The root bark contains **stachydrine, rutic acid and a volatile substance with garlic odor.** The cortex and leaves contain **stachydrine and 3-hydroxystachydrine.** The leaves and seeds contain **glucocapparin volatile oil, sterols, saponins and glucocleomin.**

The seeds are rich in **protein, oil and fiber** and show similar composition between them with a high content of **palmitic, oleic, linolenic, stearic, lauric, myristic and linoleic acids.** The unsaponifiable portion contain **beta-sitosterol** and **1-triacontanol.**

Capparis spinosa L. was found to contain the pharmacologically active compound **rutin** in all aerial parts. The average content of **flavonoid glycosides (quercetin 3-rutinoside, kaempferol 3-rutinoside and kaempferol 3-rhamnosyl-rutinoside)** in commercial capers produced in different Mediterranean countries is 5.18 mg/g fresh weight. When this value is converted to the corresponding **aglycones (quercetin and kaempferol)**, capers provide an average of 3.86 mg/g fresh weight.

The caper is rich in **capric acid** which gives a distinctive aromatic flavor enhanced by pickling.

Alkaloids amount to 0.91% in the root bark, 0.86% in the seeds, 0.02% in the leaves and 0.04% in the fruits.

The flower buds contain **glycosides, rutin, rutic acid, peptic acid** and a volatile emetic constituent and **saponin.** Flower buds contain 4% **pentosans** on dry wt. A pale yellow oil is obtained from the seeds. Seeds yield 34-36 % of oil.

Folk Medicinal Uses and Indigenous Knowledge

Medicinal Uses:

Pickled capers have been used as a **condiment** initially in the Mediterranean area and now worldwide over the past two thousand years.

Roots are **diuretic, astringent** and **tonic.** The root bark, which has a bitter taste, is used as **appetizer**, astringent, tonic, **antidiarrheic** and to treat **hemorrhoids**. In a poultice or orally, it is used for **spleen diseases.** Bark is also used for **gout** and as **antirheumatic, expectorant** and for **chest diseases.**

Infusions of stems and root bark are used as **antidiarrheic** and **febrifuge.** Fresh fruits are used for **sciatica** and **dropsy.** Dried and powdered fruits combined with honey are used in **colds, rheumatism, gout** and **backache.** Its decoction is used against **gastric pain.** Applied on all body is said to be good for **epilepsy.** Seeds are used in **feminine sterility** and **dysmenorrhea.** Crushed seeds are used for **ulcers, scrofula** and **ganglions**. Seeds are used in Morocco in a mixture of spices called *Ras El Hanout* which means the "head of the shop". Flowers in a poultice are used in **eczema.**

In the Sahara, the stems decoction is used to **clean eyes**. In Sinai, Egypt, the steam of leaves soaked in boiling water is used for **rheumatism.** Crushed leaves are applied in a poultice on the front against **headache** and on the face against **toothache.** Leaves heated in butter are used against **external parasitic disease** of the camels.

Culinary and other Uses

Capers of commerce, usually obtained from *Cappparis spinosa* var. *inermis*, are immature flower buds which have been pickled in vinegar or preserved in granular salt. They have a sharp piquant flavor and add pungency, a peculiar aroma and saltiness to comestibles such as pizza, fish, meats and salads. The flavour of caper may be described as being similar to that of mustard and black pepper. In fact, the caper strong flavour comes from mustard oil: methyl isothiocyanate (released from glucocapparin molecules) arising from crushed plant tissues.

Semi-mature fruits (caperberries) and young shoots with small leaves may also be pickled for use as a condiment. Caperberries are edible, piquant delicacies processed like the buds.

The plant is grazed by camels, donkeys, sheep and other animals in the desert; the ripe fruit is often eaten by the people. The flower buds are used as a condiment; and other parts, such as the flowers, fruits and young branch shoots are widely preserved as a domestic pickle

Method of preparation

Decoction and infusion, mixed with other medicinal plants.

(One tea spoon of the crushed plant is boiled and left till cold, then sweeten with honey).

Infusions:

They are made by pouring boiling water over finely chopped powdered leaves. They are allowed to stand with stirring. The clear liquid is decanted.

Decoction:

They are made by pouring cold water on the finely powdered leaves and the mixture is allowed to simmer. When cooled the decoction is strained and taken in divided doses.

Parts used

Capers (flower buds), Caper berries (fruits), leaves, roots and seeds.

Capers are the small buds picked very young, even before they have bloomed. If the caper is not picked, it will soon become a flower. This flower produces a fruit called the caper berry.



Flower buds

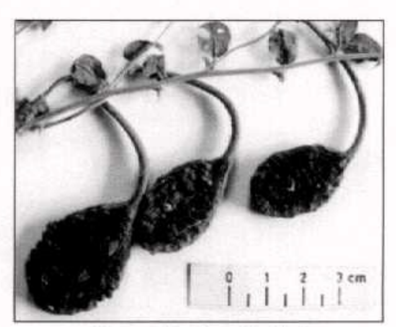
Caper berries are the mature fruits of the caper bush. They have the same size and colour as a small green olive, with a delicate fruity flavour. The caper berry resembles a large grape with white stripes like a small watermelon.

Dose: Twice a day, morning and evening before meals.

Use: By mouth.



Leaves



Caper berries (fruits)

Heritage Resources

Capers are probably originated from dry regions in west or central Asia. Their origins trace back over 7500 years to prehistoric eras in what is now known as Iraq. Known and used for millennia, capers were mentioned by Discorides as being a marketable product of the ancient Greeks.

Capers are also mentioned by the Romans. As early as the first century, the Greek physician Discorides explained the medicinal properties and use of the plant in his treatise "The Medicinal Use of Capers". The first recorded use of the caper bush was for medicinal purposes in 2000 BC by the Sumerians. Also, Cleopatra had dishes spiced with capers served to Caesar.

All parts of the plant were said to have a stimulating and astringent effect when applied externally. The caper berry is believed to be an aphrodisiac, and has been promoted as an appetite stimulant, and diuretic.

The plant was reported by many Arab Moslem scientists **(Ibn Sina, Ibn El-Bitaar and El-Antaki)** in their treatises.

Plant Name: Kabar كبر , Lasaf لصف , Shaflah شفلح

Part Used: Root, bark and fruits

Uses: Wounds, ulcers, headache, rheumatic pains, asthma, poultice, hemiplegia, sciatica, emmenagogue, anthelmintic, hemorrhoid, aphrodisiac, toothache, expectorant, diuretic and antidote.

Other Uses of the Plant: Pickled and as spice for Pizza. Also it is used for skin problems.

Ethnobotany

Capers of commerce are immature flower buds which have been pickled in vinegar or preserved in granular salt. Semi-mature fruits (caper berries) and young shoots with small leaves may also be pickled for use as a condiment.

Capers make an important contribution to the pantheon of classic Mediterranean flavors that include: olives, rucola (argula, or garden rocket), anchovies and artichoks.

Additionally, ash from burned caper roots has been used as a source of salt. Young shoots are cooked and used like asparagus.

Pharmacological Action and Toxicity

Capparis spinosa L. possesses several chemically active constituents, but one of the most important class of compounds are **the flavonoids,** in particular **rutin-** the most abundant flavonoid in the plant.

Since ancient times, caper has been used to ease swellings and bruises and this led to the belief that **rutin** had properties affecting the permeability of the blood capillaries; such as reducing their fragility though clinical evidence is inconclusive. However, the herb was reported to have hepatoprotective and immunosuppressive effects and an antitumor activity against human leukemia in *vitro*.

The fresh plant yields a volatile oil having the properties of garlic oil.

Caper extracts and pulps have been used in cosmetics, but there has been reported contact dermatitis and sensitivity from their use.

The antiallergic properties of methanol extracts of the flowering buds were investigated where the extracts displayed marked antiallergic effectiveness.

The effect of single and repeated oral administrations of the plant aqueous extract at a dose of 20 mg/kg on lipid metabolism in normal and streptozotocin-induced diabetic rats was examined. The extract exhibited a potent lipid lowering activity in both normal and severe hypoglycemic rats after repeated oral administration.

Pharmacopoeias

Indian Ayurvedic Siddha Herbs
Latin name: *Capparis spinosa*
English name: The Caper Bush
Indian name: Himsra
A prostrate shrub or climber armed with divaricate, light yellow thorns.
The root bark contains stachydrine, rutic acid and a volatile substance. It is bitter, aperient, diuretic and expectorant. It is given in splenic, renal and hepatic complaints.

Pharmaceutical Preparations

Liv.52 (LiverCare) is a unique, all-natural, complex multi-ingredient formula. It is safe and effective in portecting the liver against harmful toxins from drugs, alcohol, food and water. It helps regulate levels of enzymes and optimizes assimilation. Liv.52/LiverCare has also been found to be associated with an increase in serum albumin, which is another indication of the liver protection it provides.

Recent work shows that Liv.52/LiverCare has cholesterol-regulating action. Clinically, it helps maintain healthy levels of serum cholesterol, lipoproteins, phospholipids and triglycerides.

It is interesting to mention that *Capparis spinosa* was mentioned by **Ibn El Beitar** to be among the plants used in the treatment of liver diseases.

Availability

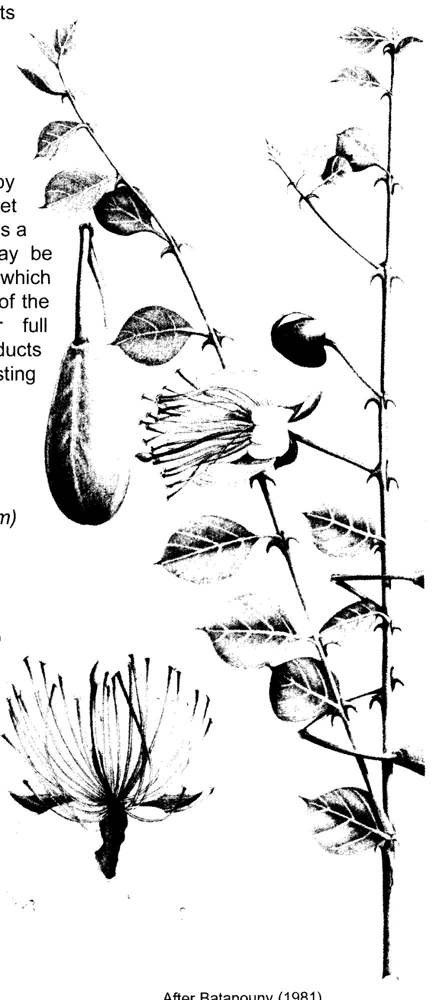
Available in a pack of 90 tablets (640 mg), 120 tablets (640 mg), and 180 tablets (640 mg). It does not contain added sugar, salt, artificial colours, flavours or preservatives.

Dosage

Two tablets twice daily, followed by a maintenance dose of one tablet twice daily. In very serious conditions a dose of 2 tablets thrice daily; may be reduced in case of loose motions (which is an indication of over stimulation of the liver). Allow several weeks for full benefits. The use of natural products provides progressive but long-lasting results.

Main Ingredients

Capers *(Capparis spinosa)*
Chicory *(Cichorium intybus)*
Black Nightshade *(Solanum nigrum)*
Arjuna *(Terminalia arjuna)*
Negro Coffee *(Cassia occidentalis)*
Yarrow *(Achillea millefolium)*
Tamarisk *(Tamarix gallica)*
The product has no side effects, no drug interactions and no contra indications.


After Batanouny (1981)

Regional Records

Records about *Capparis spinosa* in India show the following:

Capers *(Capparis spinosa)* the unopened flower buds are laxative and if prepared correctly with vinegar are thougt to ease stomach pain.

The bark is bitter and diuretic and is taken immediately before

meals to increase the appetite.

The root bark is purifying and stops internal bleeding. It is used to treat skin conditions capillary weakness and easy bruising and is also used in cosmetic preparations.

A decoction of the plant is used to treat yeast and vaginal infections such as candidiasis. Capers are an appetizer and digestive.

Since ancient times caper poultices have been used to ease swellings and capillaries.

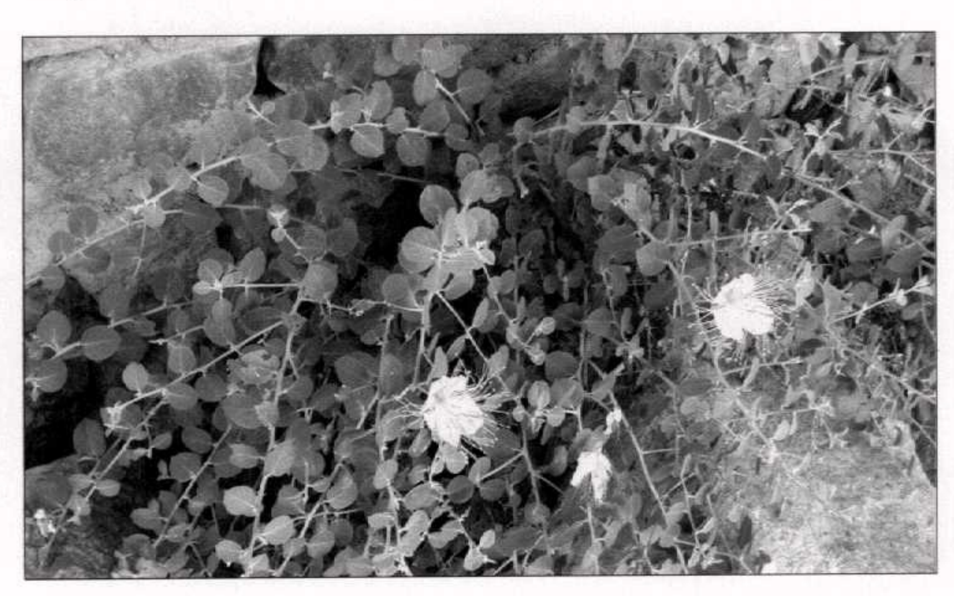
Economy

Prices

4-6 L.E. dried leaves depending on the purity and the mixture content.

Cultivation and its economical impact

As *capparis spinosa* L. plant is in demand on the Egyptian market, great attention to its cultivation should be given. This will satisfy the market needs and may also represent an important source for hard currency (in case of exportation). However, the production (cultivation) cost should be decreased by introducing mechanized systems in the agriculture work. Also, the industrial sector should be developed and all the production stages should be undertaken in the country. This would open up opportunity for jobs and simultaneously lower the prices of the drugs.



***all photographs by K. H. Batanouny.**

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كتاب الاعتماد فى الأدوية المفردة – مخطوط مصور
معهد تاريخ العلوم العربية والإسلامية فى إطار جامعة فرانكفورت،
فرانكفورت، ألمانيا الاتحادية **١٩٨٥**

البتانونى، كمال الدين حسن
أسرار التداوى بالعقار بين العلم الحديث والعطار
مؤسسة الكويت للتقدم العلمى، الكويت **(١٩٩٤)**.

البتانونى، كمال الدين حسن
مناهج العلماء المسلمين فى دراسة العقاقير والنباتات الطبية
تراثيات: مجلة محكمة يصدرها مركز تحقيق التراث، دار الكتب والوثائق المصرية، مركز تحقيق التراث، العدد الأول– ص ٥٦ – ٨٧ يناير **(٢٠٠٣)**.

البتانونى، كمال الدين حسن
نباتات ابن البيطار المستعملة فى علاج الكبد
تراثيات: مجلة محكمة يصدرها مركز تحقيق التراث، دار الكتب والوثائق المصرية، مركز تحقيق التراث، العدد السادس– ص ٤١ – ٨٠ **(٢٠٠٣)**.

الغسانى، أبوالقاسم بن محمد بن ابراهيم الشهير بالوزير
حديقة الأزهار فى ماهية العشب والعقار
حققه وعلق حواشيه ووضع فهارسه محمد العربى الخطابى، دار الغرب الإسلامى، بيروت **(١٩٨٥)**.

المنظمة العربية للزراعة
النباتات الطبية والعطرية والسامة فى العالم العربى، الخرطوم ص ٤٧٧ **(١٩٨٨)**.

اللصف (الكبار)

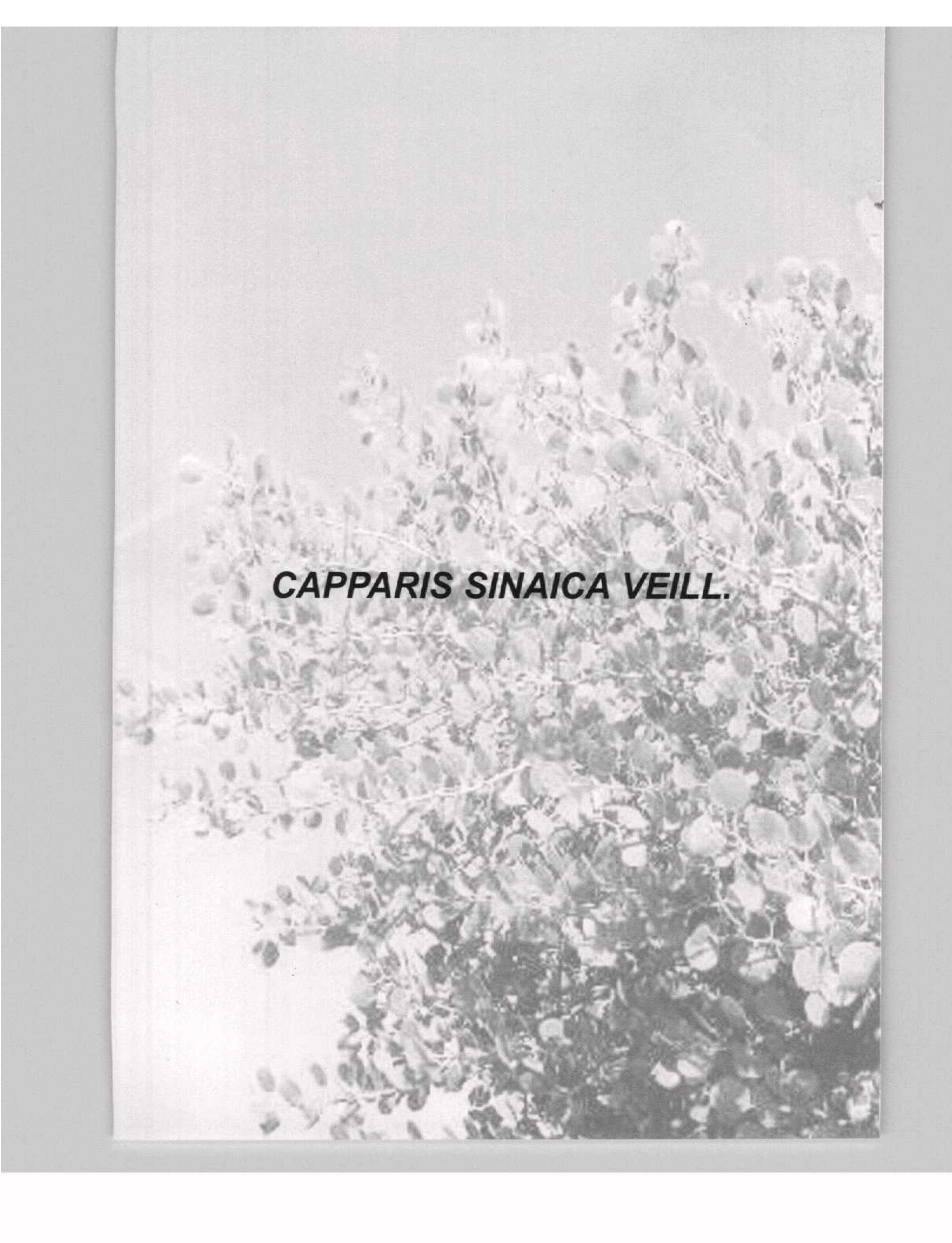
نبات اللصف (كبار أو الأكبار) نبات شجيرى صغير يتراوح ارتفاعه ما بين ٣٠-٨٠ سم، ينمو بريا فى المناطق الصخرية على السفوح الصخرية حيث يظهر متدليا عليها كما لو كان زاحفا فوق السطح الصخري فى تلك المناطق الصحراوية بالواحات وجنوب سيناء، كما ينتشر فى دول حوض البحر المتوسط وشبه الجزيرة العربية. وينمو النبات من داخل الشقوق والأخاديد الصخرية والحجرية المنحدرة على جانبى الوديان الصحراوية، والنبات يقاوم الملوحة، ويزدهر فى المناطق الساحلية على طول شواطئها. وينمو النبات بريا ببطء على هيئة شجيرة معمرة، الا أنه قد يزرع لإنتاج الكابر (وهو براعم الزهورالمخللة التى توضع على البيتزا). والنبات يقاوم حرارة الصيف الا انه من النباتات التى تميل الى الجو المعتدل الحرارة.

وحيث ان هذا النوع بكل أصنافه يتعرض لاضطرابات شديدة تعرضه للانقراض، فإنه ينبغى أن يتم إكثاره ويكون ذلك عن طريق البذور أو العقل. ويتم زراعته حاليا فى المغرب وإسبانيا والعديد من دول العالم. ويصل النبات الى ذروته فى خلال من ٣-٤ أعوام وقد يستمر لفترة تصل الى ٢٠-٣٠ عاما. ويتم حصاد البراعم الزهرية قبل تفتحها على مدار موسم النمو عدة مرات قد تصل الى ٩-١٢ مرة كل موسم.

وتحتوى البراعم الزهرية على العديد من المكونات المتطايرة من الأيزوثيوسينات والثيوسينات والكبريتيدات والجلوكوزينولات والمشتقات المؤكسدة منها. ويحتوى النبات فى جميع أجزائه خاصة الأوراق، على المركبات الفلافونيدية وعلى رأسها مادة الروتين ذات القيمة العلاجية والفارماكولوجية، والعديد من المركبات الفلافونيدية المشابهة. ويستخدم النبات منذ القدم لما له من اثار علاجية متعددة مثل علاج ضعف الشعيرات الدموية، حماية خلايا الكبد من التسمم، كما أن له تأثير مضاد للسرطان وتأثير مثبط لجهاز المناعة. هذا وقد ثبت ايضا أن خلاصة البراعم الزهرية لها تأثير مضاد للحساسية وتأثير خافض للدهون فى الدم، كما يساعد على خفض مستوى السكر. ويعطى النبات زيتا له نفس صفات زيت الثوم.

والأجزاء المستخدمة من النبات تشمل كلا من البراعم الزهرية غير المتفتحة والثمار بعد تفتح الأزهار ونضج الثمار، وكذلك الأوراق والجذور خاصة قلفها والبذور، وللنبات استعمالات طبية شعبية عديدة مثل علاج الروماتيزم.

The monograph is compiled by:
K. H. Batanouny and **Khaled A. Shams**
and edited by:
K. H. Batanouny



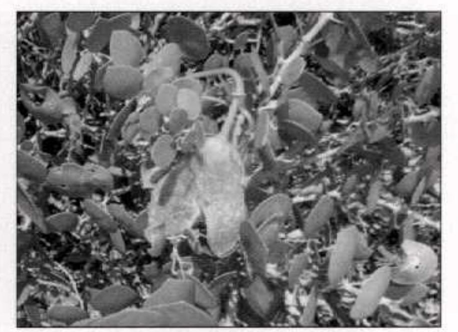
CAPPARIS SINAICA VEILL.

CAPPARIS SINAICA VEILL.

Laisuf ليصوف



Capparis sinaica Veill.



Capparis sinaica fruits

Capparis sinaica Veill. In Duh., Traite` Arbr. Arbust., ed. 2, 1: 144 (1801).
Syn. ***Capparis cartilaginea*** Decne., Ann. Sci. Nat. Bot., ser. 2, 3: 273 (1835).
Capparis galeata Fresen., Mus. Senkenb. 2: 111 (1837).
Capparis spinosa L. subsp. ***cartilaginea*** (Decne.) Maire & Weiller in Maire, Fl.
Afr. Nord 12: 120 (1965).

Names

Arabic: Kobbair, Lasoof, Laisoof كُبّار، كبر، لصوف، ليصوف
English: Fig caper
German: Kapernstrauch

Morphological Description

Evergreen trailing shrub 1-2.5 m. with a stout woody root-stock, much branched. Stems many, divaricately and intricately branched. Branches glabrous or glabrescent, whitish, slightly flexuous and thickened at nodes, glaucous, puberulent, longitudinally strtiolate. Leaves 2.5-4.5 X 1-3.5 cm, fleshy, long-petiolate, thick, cartilageous, ovate-oblong, with a spiny tip. Stipular spines short, recurved. Petioles 0.5-2 cm, glabrous or tomentose.

Flower buds 1.5 X2 cm. strongly gibbous, Pedicels stout 3-5 cm, recurved in fruit. Flowers 7-8 cm in diameter, solitary, axillary, zygomorphic, white. Sepals very unequal, the anterior and the lateral ones 1,5-2 cm, blong, concave; the posterior about 4 cm, helmet-shaped, and semi-circular, curved, with a 1-2 cm deep and white cavity. Petals

white, very unequal, the anterior pair free, spreading, broadly ovate, the posterior pair coherent, short, partly enclosed within the helmet. Stamens very numerous, c. 5 cm, filaments and anthers white. Gynoecium 5-6 cm, green. Ovary born on a long gynophore. Fruit 6-8 cm, pyriform berry, on a stipe 2.5-4 cm. Seeds numerous, reniform. Fl. Feb.- April.

Parts Used

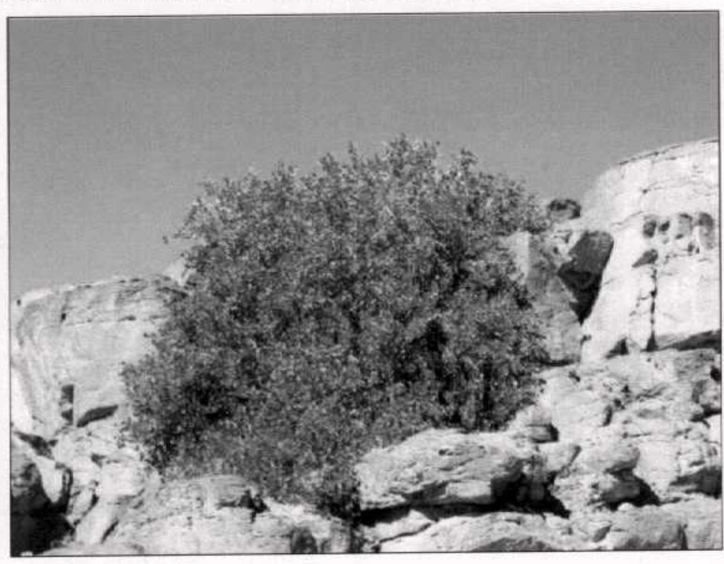
The whole herb.

Geographical Distribution

Local : Deserts and Sinai (Saint Cathreine)
Regional : East and south east African countries & Tropical Africa (Sudan, Somalia, Ethiopia).
Global : South west Asia to India. Palestine, Nubia, Arabia, Socotra, S. Iran, W. Pakistan and India.

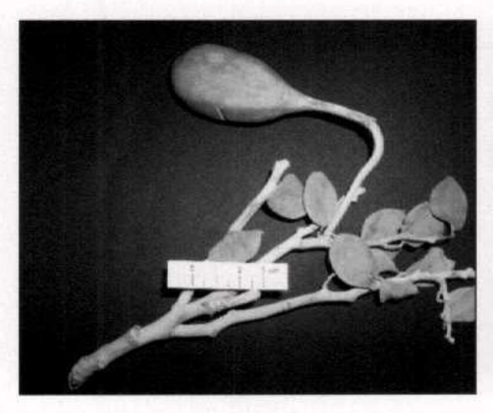
Ecology

Capparis sinaica grows on hard rock outcrops and pebbles of large stony wadis and cliffs in extreme desert areas.



Status

Grows only in natural habitats. It is threatened due to over-cutting for medicinal uses and habitat disturbance.





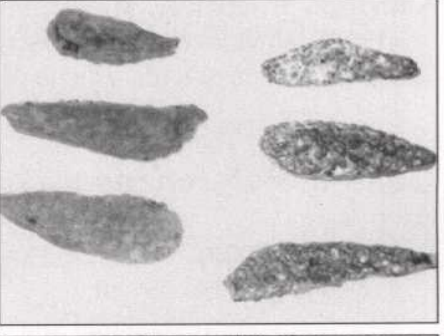
Chemical Constituents

The aerial parts of Capparis sinaica contain four flavonoids. they were identified as **quercetin 3-O-rutinoside, quercetin 3-O-rutinoside, quercetin 7-O-rutinoside and quercetin 3-O-glucoside-7-O-rhamnoside.**

Also six flavonal aglycones were recorded and identified as kaempferol, quercetin, isorhamnetin, and their 7-methoxy derivatives: rhamnocitrin, rhamnetin and rhamnazin. Also, the fruit contains vitamin C, carbohydrates and proteins.

Folk Medicine

In the Arabian folk medicine, several *Capparis* species have many uses, the total herb of *Capparis sinaica* Veill. is used for bruises, childbirth, earache, headache, paralysis, snakebite and swelling. The steam produced from the decoction of the leaves is used for treatment of rheumatism.



Medicinal Uses

The plant shows hepatoprotective activity. Also, the dried fruits are sold for pickling. Such practice is common in southern Sinai where the plant grows profusely on the rocky cliffs along Wadi Feeran.



***Capparis sinaica* (left) - *C. Spinosa* (right) in their natural habitat in Sinai**

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الليصوف

نبات الليصوف نبات شجيرى صغير دائم الخضرة يتراوح ارتفاعه ما بين ١-٢.٥ متر، ينمو بريا فى النتوءات والوديان الصخرية وكذلك الجرف فى المناطق الصحراوية.

وينتشر النبات فى صحراء سيناء الجنوبية ومنطقة سانت كاترين بسيناء، كما ينتشر فى دول شرق وجنوب شرق أفريقيا وأفريقيا الإستوائية وكذلك فى دول جنوب غرب آسيا مثل شبه الجزيرة العربية والهند وفلسطين وايران.

يعد هذا النوع من الأنواع المهددة بالانقراض وذلك لظروف الجمع الجائر للاستخدامات الطبية بالإضافة لإختلال البيئة.

وتحتوى الأجزاء الخضرية للنبات بصفة رئيسية على العديد من المركبات الفلافونيدية مثل مشتقات الكيرستين وأجليكونات الفلافونال مثل الكامفيرول والرامنتين والأيزورامنتين بالإضافة إلى فيتامين ج والكربوهيدرات والبروتين.

ويستخدم النبات منذ القدم فى الطب الشعبى فى علاج الجروح والشلل وتسهيل الولادة والآم الأذن والصداع وعضة الثعبان ويستخدم بخار مغلى الأوراق فى علاج الروماتيزم. وللنبات استخدام قوى فى علاج أمراض الكبد وتستخدم الثمار الجافة الناضجة كتوابل للتخليل حيث يضاف الى البيتزا والمأكولات.

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CYPERUS ROTUNDUS L.

CYPERUS ROTUNDUS L.

So'ad **السُّعد**



Cyperus rotundus L., Sp. Pl., ed. 1,45 (1753)

Syns.

Cyperus tuberosus Rottb., Descr . P1 . Rar, Progr. 18 (1872) et Descr.Ic.
Rar. Pl. 28, t. 7, f. 1(1773).
Cyperus hexastachyos *Rottb., Descr. Ic.Rar.Nov.P1.28, t.14, f.2 (1773).*
Cyperus comosus Sibth. & Sm., F1. Graec. Prodr. 1:31, f.44 (1806).
Cyperus rotudnus L.var. *macrostachyos* Boiss., F1. Orient. 5:377 (1882).
Cyperus rotundus L.*forma* comosus *(Sibth. & Sm.) K.Richter, p1. Europ.*
1:135 (1890).
Cyperus subcapitatus C.B. Clarke, F1. Br. Ind. 6:616(1893).
Chlorocyperus rotundus (L.) Palla, Allg. Bot Zeit.6: 61 (1900).
Cyperus rotundus L. var. *subcapitatus* (C.B. Clarke) KÜk. In Engl., Pflanzer.
101 (IV.20): 112 (1935).

Names

Arabic: So'ad السُّعد
English: Nut- grass
French: Souchet rond
German: Runde Zyperw¸rzel

Morphological description

Perennial rhizomatous, with wooly brownish roots; rhizomes 1-5 mm diam., numerous, creeping, wiry, purplish-brown, bearing purple -veined, red-brown scales or their fibrous remains, ending in a swollen ellipsoid, woody tuber Ca.2.5 x 1.2cm, covered with fibres; culms 0.15-1.3m, 1-4(-6) mm broad, rigid, triquetrous, or terete to triquetrous below inflorescences, ridged.

Leaves several, basal, crowded or cauline, shorter or longer than culms; leaf-sheaths short to rather long, dorsally papery, papery, ridged, ventrally membranous, red-dotted, soon splitting; ligule very small or absent; leaf-blades 2-7 (-9) mm wide , flat, gradually acuminate, margins scabrid in the upper part; inflorescence umbel-like,1-2 times branched; bracts 3-9, leaf-like, unequal, the 2-3 longest generally exceeding the branches, primary branches 3-9, unequal, 0.5-5 (-13) cm , compressed, smooth; spikes ovoid to fan-shaped, lax with few subdigitately arranged spikeletes; rhachis glabrous or slightly scabrid, flexuose, sometimes with short or long secondary rays; spikelets 1-4(-6) x c. 0.2 cm, to 40-flowered, comressed, acute, becoming obtuse in fruit, ± colourless, straw-yellow to parple-red; glumes (2.5-) 2.8-4(-5) x c. 2 mm, ovate-elliptic or oblong- lanceolate, thin except for the green, minutely excurrent 3- veined keel, each side with 2-3 parallel veins; margins hyaline or red-dotted persistent wing to the node below ; stamens 3 ; anthers 1.5-2.5 mm ; style c 1 mm ; stigmas 3; nutlet 1.1-1.8 (-2)x 0.5-1 mm; ellipsoid to oblong , with flat faces, sharp angles, minutely apiculate, smooth, red to dark brown or black, rarely produced. The plant is extremely variable.

Part used



The compressed rhizome 1.5 - 2.5 cm long and 0.5 - 1 cm in diameter. It is in the form of ellipsoid tuber.

1-Macroscopical description

Fusiform rhizome, 1.5- 2.5 cm in length, 0.5-1cm in diameter, externally grayish brown to grayish blackish brown with 5 to 8 irregular ring nodes and with hair-like fiber bundles on each node, hard in texture. The transverse section red-brown to light yellow in color with waxy luster, thickness of cortex approximately equal to or slightly smaller than the diameter of stele.

2-Microscopical description

Under a magnifying glass, a transverse section reveals fiber bundles as brown spots lined in ring along circumference, here and there in the cortex vascular bundles appear as red- brown spots, and numerous secretory cells scattered as minute yellow- brown spots in the stele numerous vascular bundles scattered as spots or lines.

Powdered *Cyperus* rhizome occurs as a light red-brown and has a characteristic aromatic odor and taste. Under a microscope powdered *Cyperus* rhizome reveals fragments of polygonal parenchyma, cells scalariform vessels and seta-like fibers, a large quantity of starch mostly gelatinized and an extremely small number of stone cells.

Geographical distribution

Local: In all the phytogeographical regions of Egypt.
Regional: North African countries.
Global: Cosmopolitan



(Per.) - common plant in The Nile region including the Delta valley and Faiyom. The oases of the Western Desert. The Mediterranean coastal strip from the border with Libya near Sollum to Port Said. All the deserts except Sinai. Red Sea coastal strips. Gebel Elba. Sinai, in cultivated fields, along roads in sandy places, on moist ground.

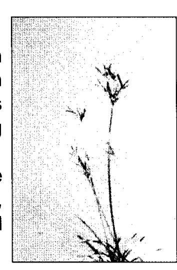
Ecology

The plant is common in cultivated fields along roads, usually on moist ground. It is considered as a weed causing problems for cultivated vegetables and crops.

Status

The plant is very common as a weed in the cultivated fields, orchards, gardens, moist ground, canals, roadsides, wasteland, Tropical and subtropical regions. The species is extremely variable and comprise numerous forms and subspecies.

Chemical constituents of the rhizome:



The family Cyperaceae contains 1% of known classified plants, very few species have been chemically investigated. However, constituents recorded in the Cyperaceae include the following components:

Essential oil which represent the most effective compounds, flavonoids, quinones, fat, sugar, carbohydrates, albuminous matter, starch, fiber and alkaloid.

1-Volatile oil and sesquiterpenes

The chemical composition of the volatile oils was investigated in detail by means of a combination of gas chromatography (GC) and gas chromatograph - mass spectrometry (GC- MS), 43 compounds that were identified from which α - and ß- cyperene (30 to 40%), α - and ß- cyperol (40 to 49%), and cyperone (0.3%), humulene, ß- caryophyllene and four of their isomeric epoxide,(caryophyllene -8.9 - epoxide, caryophyllene-1,2- epoxide, humulene epoxide I and humulene epoxide II, ß- pinene , α- pinene, limonene, 1.8 cineole, p- cymene ,small quantities of phenols, sesquiterepene hydrocarbons, sesquiterepene epoxides, monoterpenes and aliphatic alcohols.

The tubers of *C. rotundus* yield 0.45 to 1% of volatile oil.

2-Flavonoids

Rhamnetin3-rhamnosyl (1-4) rhmnoside, the glycosides of apigenin, luteolin, tricin and quercetin which was isolated from *C. rotundus*, the flavonoids so far reported in this family were located in the aerial organs.

3-Alkaloids

The tubers and bulbous roots of *C. rotundus* contain traces of alkaloids.

4-Carbohydrates, glycosides and starch

The molasses extracted from the tubers of *C. rotundus* contains 41.7% D- glucose, 9.3% D- fructose and 4% of non-reducing sugars.

5-Quinones

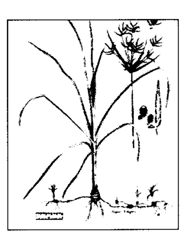
Quinones such as; cyperaquinones, scabiquinones, berviquinones and alkenylhdroxy of uinones have been isolated and characterized from the roots and rhizomes of various *Cyperus* species.

6-Fixed oil, sterols and fatty acids

The tubers of *C. rotundus* contain about 2.7% fixed oil containing wax, glycerol, linolenic, linolic, oleic, myristic and stearic acids.

Pharmacological action, toxicity

A) Pharmacological action



C. rotundus has several medicinal uses were reported. The tubers of *C. rotundus* are used as aromatic stomachic in nervous gastralgia dyspepsia, diarrhea emmenagogue, sedative, analgesic in dysmenorrhea, amenorrhea, chronic mertitis, diuretic, carminative, stimulant, as colic remedy and to remove renal calculi, tonic, aphrodisiac, anthelmintic, analeptic, codiment and stomachic, also added that the tubers in fresh state are used as diaphoretic, astringent and for scorpion stings while the decoction of tubercles is diaphoretic and the infusion of tubers is used for intestinal pains. The crude drug of this species is used as remedy for women's disease, the fresh tubers of *C.rotundus* in the form of paste is applied to the breast as a galactogogue and also used in scorpion stings.

The tubers of *C. rotundus* as powder are used as insecticide and the seeds are used as a diuretic and for treating ear, teeth and gum problems. Also the seeds are heated with olive oil and used as eardrops.

Some authors dealt with the medicinal uses of essential oils of *C. rotundus* which has camphor odour and is used for fabrics of deads, the active compounds are α- cyperone, N- isobutyldeca- 2.4- dienamide and securinine. A mixture of autoxidation products of ß- selinene have antimalarian activity also the volatile oil of *C. rotundus* tubers has antibiotic properties.

The volatile oils and stringent substances are used in perfumary and

as remedy for digestive problems.

Recently, It has been shown that all essential oils of *Cyperus* contain terpens and sesquiterpens . Monoterpenes have an immune-boosting and anti- inflammatory effect while sesquiterpenes are antiallergic, antihist- aminic and calming.

B) Toxicity of plant extract

Few studies have been carried out on the effects of extracts of *Cyperus* species and reported that the aqueous extract from tubers of *Cyperus* rotundus reduced the seedling survival rate of garden radish, onion and tomato, the effect of the aqueous extract of the leaf of *C. rotundus* on growth and aflatoxin production by *Aspergillus flavus* was studied. The plant extract inhibited aflatoxin production but there is no correlation between the aflatoxin synthesis and the growth of the fungus.



Pharmacopoeias

1. Indian Materia Medica

Recorded uses as stimulant tonic demulcent, diuretic, anthelmintic, stomachic, carminative, diaphoretic, astring- ent, emmenagogue and vermifuge.

2. Unani Medicine

Stated uses as diuretic emmenagogue, aphrodisiac, dries the futhoobath, in stone bladder, strengthen memory, chronic fever palpitation, loss of appetite and in scorpion bite.

3. Japanese Pharmacopoeias

4.Traditional Chinese Medicinal Herbs

Pharmaceutical preparations

Traditional Chinese Medicinal Herbs

1. Qistagnation

In the liver manifested as cost pain and stifling sensation in the chest. *Cyperus* tuber is used with *Bupleurum* root, *Curcuma* root and white peony root.

2. Liver Qi

Attacking the stomach as epigastric and pain. *Cyperus* tuber is used with costus root, citron and finger citron.

3. Cold and Qistagnation

In the stomach *Cyperus* tuber is used with galangal rhizome in the formulae liang fu wan.

4. Cold stagnation

In the liver meridian manifested as painful swelling of testicles or scrotum or hernia *Cyperus* tuber is used with fennel fruit and lindera root.

5. Qistagnation

In the liver manifested as irregular menstruation dysmenorrhea and distension and pain in the breast. *Cyperus* tuber is used with *Bupleurum* root Chinese angelica root and chuanxiong rhizome.

6. Gokshuradi Guggulu consists of

Triphala plus, *Trikatu* plus *Tribulus terrestris, Commiphora mukul* and *Cyperus rotundus*, are used in treatment of urinary tract disorders in the ayurvedic medicine industry in India.

7. Eazmov:

An Ayurvedic herbal preparation containing *Cyperus rotundus, Tinospora cordifolia, Saussurea lappa, Picrorrhiza kurroa* and *Zingiber officinale*, compared with diclofenac in the treatment of a mixed sample of 60 patients with OA (n=31), non-specific arthritis or rheumatoid arthritis. Patients were allocated randomly to take 1 capsule (50 mg) of either Eazmov or diclofenac three times daily after meals for 6 months. They were assessed weekly for pain severity, morning stiffness, Ritchie articular index, joint score, disability score and grip strength. The clinical efficacy of Eazmov was found to be significantly inferior to that of diclofenac regarding pain severity ($P<0.001$) and disability scores ($P<0.05$).

Tests for purity

1- Microbiology

The test for Salmonella spp. in Cyperus rotundus products are negative. The maximum acceptable limits of other microorganisms are as follows:

For the preparation of decoction: aerobic bacteria- not more than 10^7/g; fungi not more than 10^5/g; Escherichia coli - not more than 10^2/g.

a- Preparation for internal use

Aerobic bacteria not more than 10^5/g or ml fungi not more than 10^4/g or ml enterobacteria and certain gram- negative bacteria not more than 10^3/g or ml Escherichia coli-0/g or ml.

b- Preparation for external use

Aerobic bacteria - not more than 10^2/g or ml fungi not more than 10^2/g or ml entero bacteria and certain gram - negative bacteria not more than 10^1/g or ml.

2- Foreign organic matter

Not more than 3%

3- Total ash

Not more than 3%

4- Acid -insoluble ash

Not more than 1.5%

5- Pesticide residues

To be established in accordance with national requirements. Normally the maximum residue limit of aldrin and dieldrin for *Cyperus rotundus* is not more than 0.05 mg/kg . For other pesticides see WHO guidelines on quality control methods for medicinal plants and guidelines for predicting dietary intake of pesticide residues.

6-Heavy metals

Recommended lead and cadmium levels are not more than 10 and 0.3 mg/kg respectively in the final dosage form of the plant material.

7-Radioactive residues

For analysis of strontium-90, iodine-131, caesieum-134 caesieum-137and plutonium-239 see WHO guidelines on quality control methods for medicinal plants.

Storage

Closed tight, colored containers.

Folk Medicinal and Indigenous Knowledge

- The rhizomes are dug in September or October. They are cleaned and dried in the sun. The fibrous roots are purned away, leaving the

rhizomes ready for use.

- Sold in the Egyptian markets as rhizomes or powder of rhizomes.
- Method of preparation as mentioned befor in pharmaceutical preparations used as powder, decoction and mixed with others.

Dosage

- 6 - 12g as recorded in Traditional Chinese Medicinal Herbs.
- 1 - 3 g powder and 56-112ml of the extract .

Diseases

Tubers of *Cyperus rotondus* (Indian Materia Medica) are useful in infusion or as soup in fever, diarrhea, dysentery, dyspepsia, vomiting, cholera, etc. Bulbous roots are scraped and pounded with green ginger, mixed with honey and given in cases of dysentery, gastric and intestinal disorders in doses of about a scruple, The Romans used it as emmenagogue in uterine complaints.

In large doses it is used as an anthelmintic to get rid of worms, fresh tubers are applied to the breast in the form of paste or warm plaster as a galactagogue. Paste is applied to scorpion stings and when dried, to spreading ulcers. The following decoctions are recommended for use in fevers:

Sbadanga paneeya:

1. Take from the tubers of *cyperus rotundus*, red sandal-wood, root of *Andropon maricatus, Oldenlandia herbaceae, Pavonia odorata*, and dry ginger each one drachm, water two seers, boil down to one seer. This decoction is given as a drink for appeasing thirst and relieving heat of the body in fever.

2. Take of *Cyperus rotundus* 5, *Solanum jacquini* 4, Gentian root 4, *Cocculus cordifolius* 4, dried ginger 6, *Oxalis corniculata* 6, *red sandalwood* 4 and Poopy capsules 6 parts. Mix and make decoction, add to the decoction when ready add honey and long-pepper powder. Dose: oz. 1/2 to oz 1/2. Useful in recurrent or relapsing fever.

3. Take from *Andropogon muricatus* 4, *Cyperus rotundus* 5 Chicory. 3, flowers of *Woodfordia floribunda* 4, March mallow root 5, common mallow 6, *Carum nigrum* 7, Dried ginger 6, *Pimpinella anisum* 6, *Myrtus communis* 4, Poppy Capsules 4, Cardamoms 6, Mint; Spearmint 4, Calumba root 6,*Onosma bracteatum* 4, Pomegranate flowers 4 and

sugar 10 parts. Mix and make a decoction in the usual way dose: oz 1/2 to1 1/2 ozs. Useful in long standing fever, cachexia anorexia, chronic diarrhoea, and dyspepsia.

Two diseases were described:

a-Diarrhoea

Diarrhoea or athisaara can be due to a number of reasons. This can be due to the use of incompatible foods, eating before the digestion of the previous meal, over eating, indigestion, vega dhaarana (control of urges), consumption of hard or solid substances (E.g. seeds, uncooked pulses and grains), excessives satiation and emaciation, eating uncooked roots and tubers, polluted water .A decoction of *Aegle marmalos, Cyperus rotundus, Corriandum sativum* and *Cuminum cinimum* can be used.

b-Fever

This is the most troublesome disease in a pregnant woman. The foetus is also affected due to transfer of heat of fever from the mother to the foetus. Fever may be due to excessive hunger, exertions, dryness, heat, retention of normal faeces, Before the fourth month, the lady is advised to a fast for one day (fasting is contraindicated in pregnancy as a general rule, but during fever, liquid diet (rice gruel) free from fat and salt were giving. After the doshas have subsided, cereals with soups should be prescribed. Advised meat soups and milk. Pungent diet and drinks, exercise and sudation should be avoided. No medicine need be given.

During and after the fourth month medicines should be given only after considering the month of pregnancy and the doshas involved and their degree of vitiation. A decoction of *Cyperus rotundus, Mollungo pentaphylla, Santalum album* and *Zingiber officinallis* can be given.

Heritage resources

The use of rhizomes in medicine is of extreme antiquity. The tubers of *Cyperus rotundus* were used by the ancient Egyptians in embalming and perfumes .It was also recognized by ancient Arab and Moslem scientists.

The rhizomes were mentioned in the writings of (Ibn - El Bitar; Dawood - El- Antaki, Ibn - Sinna, El Bairuni and El - Ghafiki). It was shown that tubers are aromatic, stomachic in nervous feestralgia, dyspepsia, siarrhoea, emmenagogue, sedative, analgesic, in dysmenorrhea, amenorrhea, chronic neurtitis, and to increase body weight. They are used as infusion for treatment of intestinal pain, as

carminative, stimulant, tonic, aphrodisiac, anthelmentic, analeptic, and to remove renal calculi.

Fresh tubers are diaphoretic, astringent and for scorpion stings.

Ethnobotany

Beside the medicinal uses of the sedges, they have been used in people's daily life in different countries.

The tuber of *C. rotundus* is said to be edible by man, but diabetic experiments have shown that rats lose weight noticeably if more than 25% is included in the diet, and used for chewing, and in preparing a white jelly- like, tiger- nut milk and as a famine food.

Regional records

In Nubia the tubers (rhizomes) were used as flour in time of scarcity and eaten roasted or boiled.

In west Africa it is used as a sweet meal. The tuber, which is sweet and has a nuty flavour is used as a vegetable

In Southern Europe and Northern and Southern Africa. The tubers, after roasting and grinding, are used as a suitable addition to coffee and coca

It was mentioned that, foxtail rhizome or matrhizome has been much elutriated for the reclamation of salt land and to support rice cultivation in lower Egypt.

Economy

The price of one kilogram of *Cyperus routndus* powder equals 40 pounds.

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ابن الجزار، أبو جعفر أحمد بن إبراهيم بن أبى خالد الجزار
كتاب الاعتماد فى الأدوية المفردة – مخطوط مصور
معهد تاريخ العلوم العربية والإسلامية فى إطار جامعة فرانكفورت
فرانكفورت، ألمانيا الاتحادية **١٩٨٥**

البتانونى، كمال الدين حسن،
أسرار التداوى بالعقار بين العلم الحديث والعطار
مؤسسة الكويت للتقدم العلمى، الكويت **(١٩٩٤)**.

السُعد

نبات السُعد Cyperus rotundus (so'ad) ينتمي إلى الفصيلة السعْدية وهو عشب ينمو في الحقول والأراضي الرطبة حيث يسبب كثيرا من المشاكل للفلاحين حيث ينمو وسط مزارع الخضراوات والبقول.

أظهر المسح الكيميائي لنبات السُعد أنه يحتوى على العديد من المكونات والمركبات مثل فلافونيدات، قلويدات ،استيرولات، كربوهيدرات، نشا، جليكوسيدات، زيت طيار وزيت ثابت وكيتونات.

وجد أن الزيت الطيار للنبات يحتوى على ٢٧ مركبا على الأقل منها سيبرن. الفا سيبرين وكاريوفلين حيث يمثل ٧٠٪ من محتوى الزيت .

استخدمت درنات نبات السعد بواسطة قدماء المصريين كمعطر لما له من رائحة طيبة. كما استخدمت فى التحنيط.

ذكرت الأبحاث الحديثة انه يستخدم في علاج العديد من الأمراض مثل استخدامه كمنوم وطارد للديدان وفى حالات التلبك المعوي وحالات آلام الأسنان وفى علاج انقطاع الطمث لدى السيدات وعلاج الحمى والإسهال وكمنشط جنسي وأيضا يفيد في إنزال حصوات الكلى، ووجد انه يفيد في علاج الحموضة و آلام القولـون العصبـــي

ذكر استخدامه في الهند (الطب اليوناني) كمدر للبول، ومنشط جنسي وعلاج الحمى وأيضا يفيد في نزول حصوات المرارة، وفقدان الشهية ولدغ العقـــرب.

كما ذكر استخدامه في الهند كطارد للديدان، ومدر للبول، وفي حالات الإغماء وعلاج الحمى

وذكر استخدامه في الطب الصيني فى علاج أمراض الكبد والحمى والإسهــــال.

The monograph is compiled by:
KAMELIA F. TAHA
and edited by:
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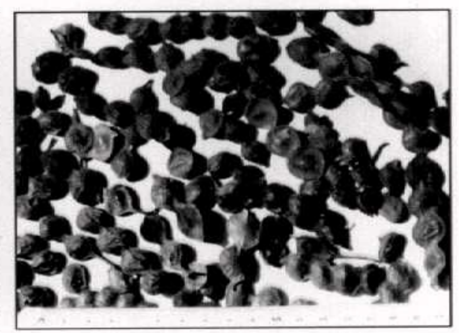
ACACIA NILOTICA (L.)DEL.

ACACIA NILOTICA L.

Sant سنـط



Acacia nilotica tree


Fruits (Qarad) of *Acacia nilotica*

***Acacia nilotica* (L.)** Del., Descr. Egypte, Hist. Nat. 79(1814)

Mimosa nilotica L., Sp. Pl., ed. 1, 521 (1753).
Acacia arabica (Lam.)willd., Sp. Pl., ed. 4, 4: 1085 (1806).
Acacia adansonii Guill. & Perr., *Acacia adstringens* (Schumach.) Berhaut

Two subspecies occur in Egypt:

- Subspecies *nilotica*
- Subspecies *tomentosa* (Benth.) Brenan, Kew Bull. 12: 84(1957).

Syn.

Mimosa arabica Lam., Encycl. 1: 19 (1783).
Acacia arabica (Lam.) Willd., Sp. Pl., ed. 4, 4: 1085 (1806).

Names

Arabic: Sant, Aschawkah Al misriyah, Akakia سنط، الشوكة المصرية، أقاقيا
English: Prickly acacia, black thorn, Egyptian thorn, Nile acacia,
French: Acacia á gomme, Acacia d' Egypte.
German: Aegyptische Akazie

Derivation of name and historical aspects:

Acacia is from the Greek word *akis* meaning sharp point, *nilotica* refers to its occurrence along the Nile River.

Morphological Description

A tree, 2.5-14 m tall with glabrous or tomentose branches, quite

variable in many aspects; bark thin, rough, fissured, deep red brown; branchlets purple-brown, shortly or densely gray-pubescent, with lenticels; spines gray-pubescent, slightly recurved, up to 3 cm long.



Leaves often with 1-2 petiolar glands and other glands between all or only the uppermost pinnae; pinnae 2-11 (-17) pairs; leaflets 7-25 (-30) pairs, 1.5-7 mm long, 0.5-1.5 mm wide, glabrous or pubescent, apex obtuse; peduncles clustered at nodes of leafy and leafless branchlets.



Flowers bright yellow, in axillary heads6-15 mm in diam.; involucel from near the base to about half-way up the peduncle, rarely somewhat higher; calyx 1-2 mm long, subglabrous to pubescent; corolla 2.5-3.5 mm long, glabrous or pubescent outside.

Pods especially variable, linear, indehiscent, 8-17 (-24) cm long, 1.3-2.2 cm broad, straight or curved, glabrous or gray-velvety, turgid, blackish, about 12-seeded.
Seeds deep blackish brown, smooth, subcircular, compressed, areole 6-7 mm long, 4.5-5 mm wide. Fl. Oct.-Dec; fr. Mar.- June.

Geographical Distribution

Local: The Nile Delta, Nile Valley, Oases, Sinai and Western Desert.

Regional: Naturally widespread in the drier areas of Africa, from Senegal to Egypt and down to South Africa,.

Global: Sudan and some Nile basin countries. South of Mozambique and Natal. In Asia from Arabia eastwards to India, Burma and SriLanka.apparently introduced to Zanzibar, Pemba and India; Arabia

Ecology

The plant grows on the banks of canals crossing the Delta and the Nille Valley. It was cultivated in some cases. However, its cultivation is stopped. The relicts of this species are occasionally seen along the canals neer the River Nile.

A. nilotica forms low altitude dry forests usually on alluvium and black soils. It has been widely planted on farms throughout the plains of the Delta and Nile Valley. The species grows on saline, alkaline soils, and on those with calcareous pans.

A. nilotica occurs from sea level to over 2000 m. It withstands extremes of temperature (-1 to 50 ºC), but is frost tender when young. Annual rainfall varies from 250 - 1500 mm. Trees are generally deciduous during the dry season, though riverine ssp. can be almost evergreen.

Status

Acacia groves growing in the Nile region in Egypt were replaced since many centuries by the date palm groves. Despite this, the tree was reputed for its value as a source for the agricultural tools as the hoe, the plough, ..etc. Due to the introduction of the mechanisation of agriculture, the plant was neglected. Also, due to the need of the land occupied by the trees, they were fell down. Nowadays, the tree is not as common as before. It could be considered as endangered, especially it does not grow in many other contries.

Propagation

It is a pioneer species, easily regenerated from seed. The nutritious indehiscent pods have evolved for animal dispersal. A mature tree can produce 2,000-3,000 pods in a good fruiting season, each with 8-16 seeds, yielding 5,000 - 16,000 seed/kg depending on the subspecies.

Seed Harvest

The pods are mature after turning from green to black. The pod (lomentum) does not break open (indehiscent) but disintegrates on the ground. Seeds are hard coated. Collect seed pods from 5-7 year old trees and dry in the sun. Extract seeds by beating or pounding the pods or collected from animal pens after the pods have been eaten. Clean by winnowing. Separate also through immersion in water.

Seed Storage

Store in cool and dry place with good air circulation. If stored in air

tight containers there is little loss in germination for up to 3 years. Can remain dormant in the soil for long periods.

Pretreatment is needed. Mechanical scarification works best for small seed lots. Acid scarification from 60 - 120 minutes (depending on seed provenance or age), or pouring boiling water over the seeds and allowing them to cool are also effective.

Seeds from natural populations of some subspecies are available from India and some Sahelian countries. A broader range of germplasm and *Rhizobium* inoculum, is available from the Oxford Forestry Institute (Oxford OX1 3RB UK) for field trials.

Growth and Development

The species can be direct seeded or established by seedlings. In the nursery long poly tubes (20 x 7 cm) should be used so as not to restrict rapid tap root growth. Frequent root pruning is advised. Nursery grown seedlings are usually outplanted after 6 months, but in some cases they stay in the nursery up to a year.

Sow 10-15 seeds at 2x3 m space. Thin to 3-4 seedlings after 3-4 months. Seedlings are shade intolerant. Seedlings require full sun and frequent weeding. Further thinning occurs at 5 year intervals. A spacing of 3 x 3 m between trees is common. Rotations are 20-25, 30 years.

Limitations

A wide range of pests and diseases affect this species. Of economic importance is the stem borer *Cerostema scabrator* on young plantations in India.

Euproctis lunata & E. subnotata occasionally defoliate patches of forest in Sukkur and Hyderabad. Bruchid beetles attack the seeds, destroying up to 70 %.

Buprestid beetles cause a dieback disease in Sudan. Fungal rots (Fomes papianus & F. badius) attack unhealthy trees, and powder post beetles *(Sibixylon anale & Lyctus africanus)* attack the sapwood of felled timber.

Acacia nilotica can become weedy when introduced out of its native range, particularly in more humid zones. Thorniness can be a problem when introduced to areas where people do not traditionally use thorn trees.

Many wild mammals feed on seed pods and a large number of insect species attack the mature seed.

Chemical Constituents

The plant is rich in tannins and several phenolic compounds. The gum

which the tree exudes freely during March and April consists of galactose, arabinose and rhamnose. The deseeded pods, seeds, bark and wood contain 34.95%, 6.61%, 27.11% and 6.35% tannins, respectively.

The fruit

It contains high percentage of phenolic constituents consisting of m-digallic acid, gallic acid, its methyl and ethyl esters, protocatechuic and ellagic acids, leucocyanidin, m-digallic dimer 3,4,5,7-tetrahydroxy flavan-3-ol, oligomer3,4,7-trihydroxy flavan 3,4-diol and 3,4,5,7-tetrahydroxy flavan-3-ol and (-) epicatechol. Fruits contain also coumarins, alkaloids, mucilage (arabinose, xylose, galactose, 8.2%) and saponins (0.069%).

The bark

It is rich in phenolics consisting of condensed tannins and phlobetannin, gallic acid, protocatechuic acid pyrocatechol, (+) - catechin, (-) epigallocatechin-5,7-digallate.

The leaf

It contains apigenin, 6-8-bis-D-glucoside, and rutin.

The flower

It contains also phenolic compounds such as quercetin, okanin 4-O-monoglucoside, butein-4`-O-monoglucoside, isoliquiritigenin, 4`-O-monoglucoside, toxofolin, 3-O-monoglucoside, sakuranin, liquiritigenin, 7-O- monoglucoside, ginistin and baicalein.

Chemical Constituents of Arabic Gum:

Gum Acacia consists principally of Arabin, a compound of Arabic acid with calcium, varying amounts of the magnesium and potassium salts of the same acid being present. It is believed, also, that small amounts of other salts of these bases occur. (Arabic acid can be obtained by precipitating with alcohol from a solution of Acacia acidulated with hydrochloric acid.) The gum also contains 12 to 17 per cent of moisture and a trace of sugar, and yields 2.7- 4 percent of ash, consisting almost entirely of calcium, magnesium and potassium carbonates.

Medicinal Action and Uses:

Gum Acacia is a demulcent and serves by the viscidity of its solution to cover and sheath inflamed surfaces.

It is usually administered in the form of a mucilage - Mucilago Acaciae,

British Pharmacopoeia and United States Pharmacopoeia made from small pieces of Gum Acacia dissolved in water and strained (1 in 8.75).

Dose

Mucilage of Acacia is a nearly transparent, colourless or scarcely yellowish, viscid liquid, having a faint, rather agreeable odour and an insipid taste. It is employed as a soothing agent in inflammatory conditions of the respiratory, digestive and urinary tract, and is useful in diarrhoea and dysentery. It exerts a soothing influence upon all the surfaces with which it comes in contact. It may be diluted and flavoured to suit the taste. In low stages of typhoid fever, this mucilage, sweetened, is greatly recommended. The ordinary dose of the mucilage is from 1 to 4 fluid drachms.

Purity of Arabic Gum:

Adulteration in the crude state is confined almost wholly to the addition of similar and inferior gums, the detection of which requires only familiarity with the genuine article.

In the ground condition it is adulterated often with starch and dextrins, tests for which are given in the official description. Tannin is present in inferior gums and can be detected by the bluish-black coloration produced on adding ferric chloride. Gums of a yellow or brown colour usually contain tannin, and these, together with such as are incompletely soluble in water and which yield ropy or glairy solutions, should not be used for medicinal purposes.

Folk Medicine and Indigenous Knowledge:

Zulu take bark for cough, Chipi use root for tuberculosis. Bruised leaves poulticed onto ulcers. Bark, gum, leaves, and pods used medicinally

In West Africa. Sap or bark, leaves, and young pods are strongly astringent due to tannin, and are chewed In Senegal as antiscorbutic.

In Ethiopia as lactogogue. Bark decoction drunk for intestinal pains and diarrhea. Other preparations used for coughs, gargle, toothache, ophthalmia, and syphilitic ulcers.

In Tonga, the root is used to treat tuberculosis. In Lebanon, the gum is mixed with orange-flower infusion for typhoid convalescence. Masai use the bark decoction as a nerve stimulant.

In Abyssenia, the wood is used to treat smallpox. Egyptian Nubians believe that diabetics may eat unlimited carbohydrates as long as they also consume powdered pods. Extracts are inhibitory to at least four

species of pathogenic fungi.

According to Hartwell, the gum or bark is used for cancers and/or tumors (of ear, eye, or testicles) and indurations of liver and spleen, condylomas, and excess flesh. Said also to be used for cancer, colds, congestion, coughs, diarrhea, dysentery, fever, gallbladder, hemorrhage, hemorrhoids, leucorrhea, ophthalmia, sclerosis, smallpox, and tuberculosis.

Folk medicinal uses:

- Anti-cancer and anti tumors.
- Antiscorbutic
- Astringent
- Diuretic
- Intestinal pains and diarrhea.
- Nerve stimulant.

- The plant is also used for colds, congestion, coughs, dysentery, fever, gallbladder problems, hemorrhage, leucorrhea, ophthalmia, sclerosis, smallpox and tuberculosis.

Method of preparation:

A decoction of the bark and root is drunk to acquire strength and courage; also used as an aphrodisiac and is said to cure impotence. A decoction of astringent bark is used for diarrhea, dysentery, and leprosy.



A decoction of the fruit is regarded as being febrifuge and is used as an external remedy for leprosy. Unripe boiled fruits are used in cases of diarrhiea in children.

Groumd fruits are used in cases of fever, and also diseases of gums, as well as loose teeth due to its astringent action due to presence of tannins.



A mixture of powdered acacia pods and powdered henna leaves is used for the treatment of some skin diseases especially cases of Tenia (between toes of the feet).

Villagers in Nuba ingest powdered acacia pods daily especially in patients suffering diabetes, and hence can eat any amounts of carbohydrates. It is possible that acacia containning tannins which stop the conversion of carbohydrates and its digestion. It is also used to control sparrows.

Other Uses

Wood

The dark brown wood is strong, durable, nearly twice as hard as teak, very shock resistant, and is used for construction, furniture, mine props, tool handles and carts. It is best carved in a green state. The wood of this tree is utilized as firewood.

It has a high calorific value of 4950 kcal/kg, making excellent fuel wood and quality charcoal. It burns slow with little smoke when dry. It is used to fuel locomotives, river steamers and boilers in some small industries. The tree also produces gum that is used mainly in the printing industry.

Fodder

The pods and leaves contain 8% digestible protein [12.4% crude protein], 7.2 MJ/kg energy, and are rich in minerals (Le Houerou 1980). In part of its range smallstock mainly consume it, but elsewhere it is also very popular with cattle. Pods are used as a supplement to poultry rations in India. Dried pods are particularly sought out by animals on rangelands. In India branches are commonly lopped for fodder. Pods are best fed dry as a supplement, not as a green fodder.

There are many other reported uses:

The tree makes effective live fencing, a good host plant for growing sandalwood, and an important source shellac The bark is used to make a gum, most commonly known as Gum Arabic. It is used to treat sore throat, relieving clogged bronchial passages, and is often mixed with water to make a paste to soothe and heal external injuries. The gum is used in paints and medicines and has been collected for a millennia.

Fruits added to ponds in Sudan kill snail species which carry schistosomiasis without affecting the fish.

The wood of the acacia would be an excellent choice for a small chest or sacred box. Ideally, it would be handmade and used soley for containing your ritual tools. For those unable to obtain pieces of the wood large enough for box-making, the herbe may be used to consecrate the containers used for your sacred items. The dried gum may be burned as incense; the leaves or wood may be infused to create sacred water for aspurging.

Heritage Resources

Since the time of the Pharoahs, large timber trees have been exploited from the riverine forests of the Nile. At present the Sudan

forests are managed on a 20-30 year rotation producing termite resistant timber especially suitable for railway sleepers. In India and Pakistan riverine plantations are managed on a 15-20 year rotation for fuelwood and timber.

The pods were used by the ancient Egyptians. Young pods produce a very pale tint in leather, notably goat hides. The fruits were given for diarrhea, haemorrhage, as sedative in labour, as a cure for sore gum and loose teeth. Egyptian Nubians believe that diabetics may eat unlimited carbohydrates as long as they also consume powdered pods by taking a teaspoonful before breakfast. The leaflets were chewn for nausea. The pods of ssp. *nilotica* have been used for tanning in Egypt for 6,000 years. Subspecies *adstringens* is used for both tanning and dye making.

Acacia has a long history of use as a religious herb. Lore tells that the Ark of the Covenant was crafted of this wood. Some also believe the sacred Tabernacle of the ancient Hebrew tribes was made of acacia wood. Acacia is connected with some of the Hebrew atonement customs. Because of its religious associations, the mundane use of this herb was proscribed.

Christian lore holds that acacia thorns were those used to fashion the crown of thorns placed upon Christ's head.

Robert Graves lists acacia as one of the nine materials of Nimrod's Tower and later writes that Jehovah selected the acacia from which to speak to Moses because the tree "constituted a definition of his godhead." Graves also writes in The White Goddess: A historical grammer of poetic myth:

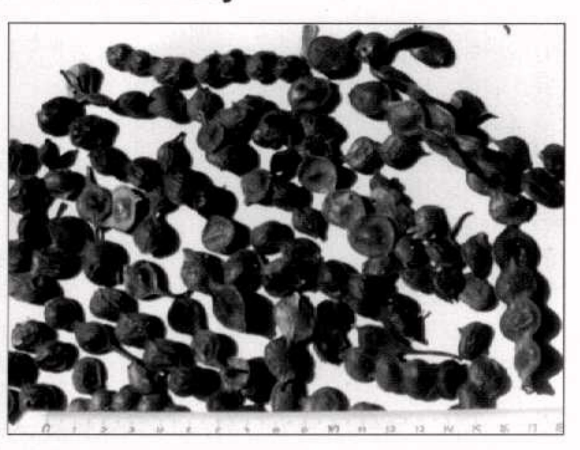
It was from its water-proof timber that the arks of Sun-hero Osiris and his counterparts Noah and Am\rmenian Xisuthros were built; also the the Ark of the Covenant, the recorded measurements of which proved it scared to the Sun. This is a host-tree of the mistletoe-like loranthus, Jehovah's oracular "burning bush" and the source of manna.

According to Graves, hedges of acacia were grown as a means of definining the spaces among the communities of the Essenes, seperating the women's area from the men's. Graves believed that the acacia was grafted with a pomegranate and was the Tree of Life in the Garden of Eden. The Judeo-Christian god was very skilled at horticulture and botany.

Ethnobotany

The plant has an economic importance due to its high content of polyphenolics. The plant is used for tanning and dying leather black, tooth brushes (chewsticks), trees tapped for gum arabic. Because of its resins, it resists insects and water.

Pharmacological Action and Toxicity



Fruits and bark extracts showed molluscicidal activity against the two snail hosts of Schistosoma. Also, antihyperglycemic activity was observed. The plant possesses antibacterial and antifungal activities.

The plant extract showed stimulation of rat`s uterus at different stages of sex cycle, `antimicrobial activity, blocking platelet aggregation in a dose-dependent manner using different agents which is mainly due to blockage of Ca^{2+} channels, and an inhibitory effect on carrageenan induced paw edema and yeast-induced pyrexia in rats. It also produced a significant increase in the hot plate reaction time in mice.

Analgesic and antipyretic activities may be attributed to the phenolic constituents present.

Acacia nilotica is considered a good source of antioxidants whose bark, the Maasai use to flavour their meat soups and milk. Some crude acacia extracts seem to have stronger antioxidant properties than either vitamin C or vitamin E - the most popular antioxidants sold in the North.

An aqueous extract of the seed of *Acacia nilotica* was investigated for its pharmacological profile. On the isolated guinea-pig ileum, the extract displayed sustained dose-related contractile activity. The contractions which were reduced by hexamethonium, promethazine or atropine were completely abolished by nifedipine. The intravenous (i.v.) administration of the extract (11, 22, 44, 55 µg/kg) to anaesthetized cats produced a dose-related significant elevation of blood pressure.

Acacia nilotica, which is a widely grown, problem weed in many countries, could be used as a source of methyl gallate from methanol extract of *Acacia nilotica* after removal of organic bases and free acids. Further studies involving crude extracts of *Acacia nilotica* containing methyl gallate would be highly economic and would account for useful consumption of the problem weed. Methyl gallate possess a fungicidal effect against Streptococcus cerevisiae but may not be potent enough for practical application.

Water, ethanol, *n*-hexane and chloroform extracts were prepared from dried powdered fruit and tested for in-vitro antimicrobial activity against

human pathogenic bacteria and *Candida albicans*, using agar dilution and broth microdilution methods. The extracts had a varying degree of antimicrobial activity. Extracts in water and ethanol were generally more active than those in *n*-hexane and chloroform. The extracts were more effective against Gram positive cocci than Gram-negative bacilli. Antifungal activity against *Candida albicans* was found in the *n*-hexane extract only. The results indicate the therapeutic value of A. nilotica extracts as potential antimicrobial agents.

Regional Record

Use of traditional unani medicine for traditional wealth care hakim maqbool hassan

1- *Acacia nilotica* as skin diseases, oral Hygiene

2- *Acacia nilotica* In Indian medicane

Sanskirt name: Babbul

English name: Indian gum Arabic tree

Common name: babul

Parts used: leaf, bark, pod, gum

Indication: diarrhea, teeth disnders, eczema, tonsillitis, conjunctivitis, epiphna, leucorrhoea, used in tooth pastes and gargles

Economy

Prices

3-6 L.E. depending on the purity and the miosture content.

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كتاب الاعتماد فى الأدوية المفردة – مخطوط مصور
معهد تاريخ العلوم العربية والإسلامية فى إطار جامعة فرانكفورت
فرانكفورت، ألمانيا الاتحادية **١٩٨٥**

البتانونى، كمال الدين حسن،
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مؤسسة الكويت للتقدم العلمى، الكويت **(١٩٩٤)**.

الغسانى، أبوالقاسم بن محمد بن ابراهيم الشهير بالوزير
حديقة الأزهار فى ماهية العشب والعقار
حققه وعلق حواشيه ووضع فهارسه محمد العربى الخطابى، دار الغرب الإسلامى
بيروت (١٩٨٥).

السنط (الشوكة المصرية)

شجرة السنط كانت تنمو بغزارة فى منطقة دلتا النيل والوادى على مستوى مصر كلها وتمتد حتى السودان ودول حوض النيل.

وهى عبارة عن شجرة خشبية يصل أرتفاعها من ٢.٥ إلى ١٤ مترا، ذات فروع ملساء، والقلف سميك والأزهار ذات لون أصفر لامع على هيئة رؤوس إبطية، والقرون مستقيمة من ٨-١٧سم وعرضها من ١.٣-٢.٢سم وتحتوى على حوالى ١٢ بذرة، بنية اللون تميل إلى السواد شبه مستديرة و منضغطة، محيطها يصل إلى ٦-٧مم وعرضها حوالى ٤.٥-٥مم، وتعرف ثماره بالقرظ.

وينمو النبات برياً على حواف الترع والقنوات التى تخترق منطقة دلتا النيل والوادى وقد يزرع فى بعض الأحيان ولكن زراعته توقفت حاليا.

وفى وقتنا الحالى فإن النبات ليس على نفس درجة الانتشار كما كان سابقاً بسبب الميكنة الزراعية وزراعة أنواع أخرى مثل نخيل البلح وأشجار الكافور، ويمكن اعتبارها من النباتات المهددة خاصة أنها لا تنمو فى كثير من البلدان، ويحتاج النبات إلى الاهتمام به وإكثاره.

ومن أهم المكونات الكيميائية التى يتميز بها النبات أنه من أهم المصادر لإنتاج الصمغ الذى يدخل ضمن العديد من المستحضرات الدوائية علاوة على استخدماته الصناعية الأخرى كما يتميز النبات باحتوائه على العديد من المواد التانينية ذات الطبيعة الفينولية بنسبة عالية سواء فى الثمار أو فى القلف وهى مواد ذات قيمة علاجية فضلاً عن استخدامها فى عملية دباغة الجلود.

كما تحتوى الأوراق والأزهار على العديد من المركبات الفلافونيدية والقلويدات.

استخدم قدماء المصريين القرون الصغيرة للنبات فى دباغة الجلود كما استخدموا الثمار فى علاج الإسهال والنزيف الدموي وكمهدئ وملطف لالتهابات اللثة، كما يعتقد سكان أهل النوبة ان أكل الثمار يفيد فى علاج السكر، كما أنه يساعد على إنقاص الوزن.

ومن المعروف أنه يستخدم فى الطب الشعبى لعلاج مرض الإسقربوط وكمضاد للأورام السرطانية وكقابض ومدر للبول ولعلاج النزلات المعوية وكمنبه للأعصاب.

والنبات ذو قيمة اقتصادية عالية سواء من ناحية إنتاجة للصمغ العربى واحتوائه على المواد الفينولية من التانينات التى تستخدم فى دباغة الجلود.

وقد اثبت الدراسات الفارماكولوجية أن خلاصة النبات لها تأثير مبيد لقواقع مرض البلهارسيا، كما أن خلاصة النبات لها تاثير منبه للرحم وكمضاد للبكتريا ومسكن وخافض للحرارة.

ويجمع النبات فى مرحلة الازهار أو الإثمار.

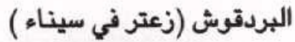
الأجزاء المستخدمة من النبات تشمل كلا من الثمار والقلف و الأوراق على هيئة منقوع او مغلى لمسحوق عن طريق الفم. وقد ذكرت المراجع التراثيه رب القرظ، ويحضر من الثمار.

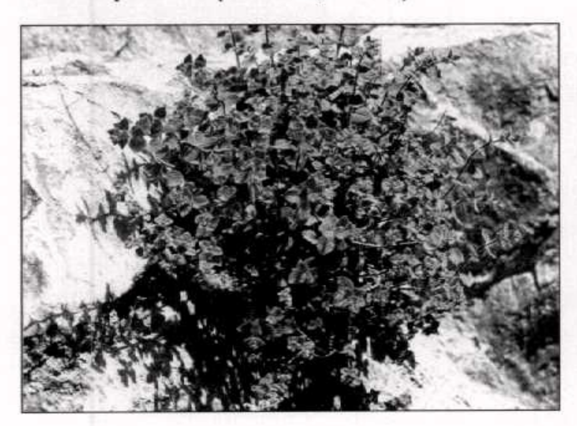
The monograph is compiled by:
Shams. I. Ismail
and edited by:
K. H. Batanouny

ORIGANUM SYRIACUM L.
subsp. sinaicum

ORIGANUM SYRIACUM L.
subsp. sinaicum

Bardaquoosh (Za`atar, Sinai)







Origanum syriacum* L.** Sp.Pl., ed. 1, 590(1753), subsp. ***sinaicum (Boiss.) Greuter & Burdet, Willdenowia 14: 301 (1985).
Syn. *Origanum maru* L. var. *sinaicum* Boiss. Fl. Orient. 4: 553(1879).

Names

Arabic: Za`ater (in Sinai), Bardaquoosh, Marw — البردقوش، زعتر (في سيناء)، مرو

English: Marjoram, Origanum, Sweet majoram, Knotted marjoram, Bible hyssop, Syrian oregano.

French: Marjolaine d` Orient, Marjolaine, Marjolaine de Syrie, Origan d'Egypt.

Because common **Hyssop** *(Hyssopus officinalis)* is not native to the Mediterranean area, much debate has ensued over which plant was referred to as Hyssop. It may have even been several different plants used for different and varied purposes.

Origanum syriacum is thought to be the true **Hyssop of the Bible** which is one of the better-known plants of the Bible referred to in both the Old and New Testaments.

This plant, or a product of this plant, formed an important part of the passover, ceremonial cleansing from skin disease, and the red heifer offering.

Hebrews refer to the ceremonial cleansing of the children of Israel and mention hyssop.

Morphological Description



Perennial herbs, tomentose low undershrub 40-90 cm. stems erect, much branched. Leaves broadly ovate, entire, palmate-veined, obtuse, the base rounded; petiole 1-2 mm; verticillasters in terminal panicles of numerous dense spikes 0.5-1 cm; bracteoles 2.5 x 1.5 mm, ovate, white-canescent; calyx c. 2.5 mm; corolla 4.5-5 mm, lilac.

The size of the leaf is variable depending on the shading of the plant as it grows in the shadow of rocks.

Geographical Distribution

Local: The entire Sinai Peninsula including the coastal Mediterranean region and El-Tih, Endemic.

Regional: The subspecies is endemic to Egypt.

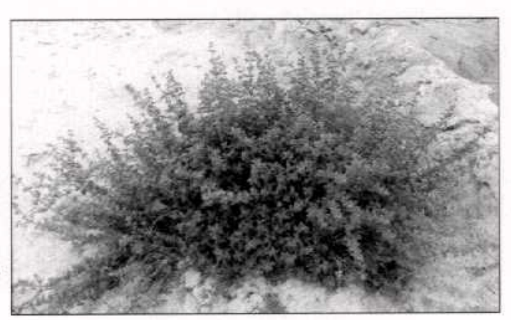
Global: The subspecies is native to the Middle East.

Ecology

The plant is rare and grows in rocky habitats in the mountains of Sinai. The species is common in the dry temperate regions. The plant prefers light (sandy), medium (loamy) and heavy (clay) soils and requires well drained soil. The species prefers acid, neutral and basic (alkaline) soils and can grow in very alkaline soil. It can grow in semi-shade (light woodland) or no shade. It requires a dry to a moist soil and moderate to little water.

The plant is mostly affected by elevation, nature of soil surface, available phosphorus, and nitrogen content.

Status



- The plant is vulnerable. It is collected for medicinal uses and to prepare hot tea. The type of *Origanum maru* var. *sinaicum* was collected on mountains of

Sinai, 13June 1835, Schimper 385 (K.). The plant is endemic.

- The leaves and flowering tops are collected during the day when the plant is in late flowering stage.
- Grazing represents a great disturbance for natural vegetation, so vegetation protection through fencing resulted in higher total plant cover, species diversity and richness.
- The plant is threatened due to the retreat of its habitat and the exploitation for folk medicinal uses. There is need for conserving this species, both *in situ* and ex *situ*.

Storage:

The plant is packed in large sacs of jute or cotton and ranked onto wooden tables in a dry and dark places. The place should has good ventillation system and must be away from insects and rodents.

Propagation

Seed- sow:

In a greenhouse in early spring at 10-13 °C and with a thin seed cover. Germination usually takes place within two weeks. Prick out the seedlings into individual pots when they are large enough to handle and plant them out into their permanent positions in early summer.

Division:

In March or October. Very easy, larger divisions can be planted out direct into their permanent positions. It is better to pot up the smaller divisions and grow them on in light shade in a cold frame until they are well established before planting them out in late spring or early summer.

Basal cuttings:

Of young barren shoots in June. Very easy. Harvest the shoots with plenty of underground stem when they are about 8-10 cm above the ground. Pot them up into individual pots and keep them in light shade in a cold frame or greenhouse until they are rooting well. Plant them out in the summer.

Chemical Constituents

Water-distilled essential oil from herbal parts of *Origanum syriacum* var. *sinaicum cultivated* in El Arish, Egypt was analysed by GC and GC-MS using polar and non-polar columns. The chemical composition of the essential oil was found to contain 49.02% monoterpenes, 36.60%

oxygenated monoterpenes and 12.59% sesquiterpenes.

Thymol (24-29%), cis-sabinene hydrate (18-20%), -terpinene (13-15%), *p*-cymene (5-8%), carvacrol, beta-caryophyllene and terpinen-4-ol (4-8%) were characterized as the main constituents.

New monoterpene glycosides were isolated from the aerial parts of the plant and identified as: three new monoterpene glucosides thymoquinol 2,5-O-beta-diglucopyranoside (3), carvacrol 2-O-beta-glucopyranosyl-(1-->2)-beta-glucopyranoside (4) and p-menth-1-ene-3,4-diol 4-O-beta-glucopyranoside (5) together with two known monoterpene glucosides thymoquinol 2-O-beta-glucopyranoside (1), thymoquinol 5-O-beta-glucopyranoside (2) have been isolated.

The enzymatic hydrolysis of compounds 1 and 2 produced thymoquinol as aglycone (1a).

The flavor of Za'atar *(Majorana syriaca)* is characterized by Carvacrol (69.5%), a creosote-scented phenol, which is the signature chemical responsible for the sharp, pungent flavor of the culinary origanum, and *p*-Cymene (10.3%), although it does contain some sixteen other flavoring compounds.

Sabinene hydrate constituent is largely responsible for Origanum's sweet flavor.

2 OR_1

R_2O 5

	R_1	R_2
(1)	Glc	H
(1a)	H	H
(2)	H	Glc
(3)	Glc	Glc

O---Glc-2-Glc

(4)

2

3 OH

Glc----- O 4

(5)

Folk Medicine and Indigenous Knowledge

The drug is used for:

Anti-rheumatic
Antiseptic
Antispasmodic
Carminative
Cicatrizant
Digestive
Diuretic
Emmenagogue
Expectorant
Nervine
Sedative
Stimulant
Tonic and vulnerary

Medicinal Uses:

Za'atar has a long history as a medicinal and flavoring herb. The plant has been used in folk medicine to treat colds, coughs, gastrointestinal problems and a variety of other conditions, and the plant reportedly have antibacterial, antifungal and antimicrobial properties due to the phenol carvacrol.

Its thymol concentration is probably responsible for its effective applications in treating tooth decay, gum infections, and coughs; hyssop tea is drunk after meals to aid digestion.

The oils are used commercially to scent soaps, lotions and colognes, and have also been used to make dyes.

The essential oil in *Origanum* might possibly have the effect of softening the sharp taste of the vinegar. But perhaps there is also a connection with the use of hyssop as a broom (in this case with scarlet wool, which would function very well for sprinkling of water) in Hebrews.

Method of preparation:

Infusion of the dry leaves, alone or mixed with other medicinal plants.

Culinary Uses:

This mixture of sumac, sesame seed and herbs is used frequently in the Middle East and Mediterranean areas. It is often mixed with olive oil and spread on bread; sometimes this is done at the table, other times the mix is spread on the bread rounds which are then baked.

Za'atar also serves as a seasoning to sprinkle on vegetables, salads, meatballs or kebabs. Much like sausage seasonings, each country has

distinctive style of Za'atar, and each family develops its own special blend.

Various mixtures are sometimes marketed as "Za'atar" (or Zathar). Thyme and Sumac is a common version. Another is: Thyme, Salt, Sumac and Toasted Sesame. Yet another is: Thyme, Sumac and Summer Savory. A melange of Marjoram, Sesame, Sumac, Salt and Olive Oil is also called Za'atar.

Za'tar or "Za'atar" are generic names for a whole group of Middle Eastern herbs from the genera *Origanum, Calaminta, Thymus* and *Satureja.* Za'atar tastes like a cross between Thyme, Marjoram and Oregano.

The flavor of Za'atar is characterized by Carvacrol (69.5%) and p-Cymene (10.3%), although it does contain some sixteen other flavoring compounds. The dried flower heads of this oregano are also usable if picked before browning of the flowers occur. Their flavor is very concentrated and is the perfect flourish for a grilled cheese sandwich or a bowl of creamy tomato soup.

Recipes:

Za'atar

3 parts toasted sesame seeds

2 parts dried spiked thyme (Thymbra spicata)

1 part dried Syrian oregano

1/2 - 1 part powdered sumac

salt, optional

The thyme and marjoram should be as fine as possible. If you can't find sumac, you can either do without or substitute some lemon salt (may be only a half part, in proportion), since the sumac has a lemony flavor.

Parts used:

The leaves, the flower heads and the total herb.

Use: By mouth.

Heritage Resources

Za-atar (an Arabic word pronounced Zah-tar) or hyssop (translation of

the Hebrew word (ezov) is a Middle Eastern herb closely related to the oreganos, as its several botanical names imply. Za'atar is also the Arabic name for a spice mixture (in which the herb is the main flavoring ingredient) baked into the crust of pita and other breads.

The herb's flavor is sharp, a blend of thyme, marjoram, and oregano. Where it is unavailable, other herbs -notably spiked thyme (Thymbra spicata) -are substituted in the spice blend.

Eizov played a role in several Jewish purification rites. It was an element of the enigmatic red heifer rite *(parah adumah)* used to remove the impurity of contact with death, and the priest shall take cedar wood, and eizov, and scarlet wool thread and cast it into the midst of the burning of the heifer.

Also, it formed an integral part of the ceremonial cleansing of lepers. "The priest shall command to take for him that is to be cleaned, two live birds, and cedar wood, and scarlet wool thread, and eizov. and for the live bird, he shall take it, and the cedar wood, and the scarlet wool thread, and the eizov, and shall dip them and the live bird in the blood of the bird that was killed over the spring water. The chatat water and the water of the leper were then customarily sprinkled with a bunch of eizov.



The name Hyssopus was used by Hippocrates derived from the Hebrew word ezob which means holy herb. It is mentioned in the Old Testament where the herb was used for purification, yet could also possibly refer to *Origanum syriacum*

(Syrian Oregano) which is one of the Za' tars, Arabic Herbs, thought to have powers of spiritual purification.

Already well known in ancient times, it was referred to in the Bible for its cleansing effect in connection with plague, leprosy and chest ailments Hyssop was used for purifying sacred places and as a strewing herb in the Middle Ages toward off lice. Dry leaves were used as spice, condiment and to relieve pain.

Ethnobotany

The leaves and flowering tops are used as a seasoning, having a flavor reminiscent of a blend of thyme, marjoram and oregano.

The dried herb is sometimes mixed with sumac (from Rhus species) to form the spice blend known as "Zatar",

Zatar is often spread on bread with a little olive oil and baked something like an herbal pizza. Zatar, called Manaeesh in Lebanon, combines Origanum maru (also called Lebanese Oregano) with not only Pink Savory or Conehead Thyme but also with other easily accessible ingredients.

In Carol Saville's excellent book ***Exotic Herbs***, she gives this simple recipe for Zatar:

1/2 cup dried Syrian Oregano
1/4 cup imported edible ground sumac
(make sure to get the edible kind from a Middle Eastern market)
2 table spoons roasted sesame seeds
1/4 teaspoon sea salt
Black Pepper to taste
Pita bread
2/3 cup olive oil

In a small bowl add the first five ingredients and stir together to combine, seal in a glass jar and store out of the light, makes about 2/3 cup. Preheat oven to 250 degrees. Brush pita with olive oil and sprinkle with Zatar and warm in the oven. Or mix equal parts Zatar and Olive Oil and spread over bread and then warm.

The Bedouin grind the dried leaves, add salt and eat the dry mixture on bread. The leaves and flowering stems of this species are often dried and supplied commercially as "oregano".

The flowers and leaves can be used as flavoring agents in teas, tonics and candy, and as spice in cooking. the essential oil has been used in perfumes. The fresh herb is used with sesame seed and olive oil to make a special dish.

Fresh and dried leaves of oregano can be added to soups, casseroles, sauces, stew, stuffing, eggs, olives, teas, tomato-based dishes, chili ànd pizza. Flowers have a flavor similar to the leaves and can be a flavorful and decorative addition to vegetables, salads and other foods.

Pharmacological Action and Toxicity

The infusion has an agreable flavor and is often used by herbalists to treat pulmonary diseases. Hyssop is commonly combined with horehound to ease sore throats, and to treat asthma and bronchitis. Acute inflammatory conditions of the respiratory system are best treated with herbs that soothe the inflamed tissue rather than strong expectorants. This approach of cough therapy can rapidly ameliorate

symptoms and shorten the duration of respiratory illness.



A few cases of toxicity resulting from ingestion of hyssops essential oil have been reported. The clinical symptoms of hyssop toxicity include convulsive seizures that resemble epileptic fits and vomiting, and may develop within a few minutes to two hours. The commercially available essential oil of hyssop contains pinocamphone and isopinocamphone, which may be responsible for the neurotoxicity, injections of relatively low dosages of these drugs (0.02 mL/kg) proved to be lethal in rats.

The reducing power, antioxidant and 2,2-diphenyl-1-picrylhydrazyl (DPPH) radical-scavenging activities of the essential oil were studied. Antioxidant activity of the oil was slightly lower than those of ascorbic acid or BHT. so the oil can be considered an effective natural antioxidant.

Antimicrobial activities of the essential oil from the leaves of the plant was also determined on 16 microorganisms tested using agar-disc diffusion method, and showed antimicrobial activity against 13 of these.

Also, the plant essential oil showed antifungal activity. Petrollium ether extract of *Origanum syriacum* showed the highest and widest range of activity than alcoholic, chloroformic and butanolic extracts. It resulted in complete inhibition of mycelial growth of six of eight fungi tested and also gave nearly complete inhibition of spore germination of the six fungi included in the assay, namely, *Botrytis cinerea*, *Alternaria solani*, *Penicillium* sp., *Cladosporium* sp., *Fusarium oxysporum* f. sp. *melonis*, and *Verticillium dahlia*. The other plant extracts showed differential activities in the spore germination test, but none was highly active against mycelial growth

Therapeutics Available Data on the Drug

The plant is used as antioxidant, hemostatic, analgetic, antispasmodic, digestive, expectorant and antiseptic. It is used for digestive system disorders, respiratory system diseases, and as a tonic.

Dose:

Twice a day, morning and evening before eating.

Pharmaceutical preparations

Various mixtures are sometimes marketed as "Za'atar" (or "Zathar"). Thyme and Sumac is a common version. Another is: Thyme, Salt, Sumac and Toasted Sesame. Yet another is: Thyme, Sumac and Summer Savory. Also, there is a melange of Marjoram, Sesame, Sumac, Salt and Olive Oil.

1- Oil of Oregano Oreganol

The producer of the drug writes: This was the result of extensive research. To be edible, this essential oil must be made only from wild, mountain-grown, Mediterranean oregano, free of all chemicals and pesticides. It also has to be emulsified in A carrier oil such as extra virgin olive oil, which is used by North American Herb & Spice in its oil of oregano. The oregano we use is the real, 100% Mediterranean oregano, guaranteed to be handpicked in the pristine, untarnished wilderness. We even pay the villagers to limit picking to preserve and protect the plants. Our oil is produced by old-fashioned cold pressing and steam distillation. We use no chemicals to extract it. P73 is the designated formula indicator for Oreganol from North American Herb & Spice. When you see P73 on the label you know that this is the original researched and tested, wild mountain-grown oregano. The P73 indicates that every lot of Oregano is tested to ensure proper phenol content.

Directions: Take as needed, one or several drops daily under the tongue or in juice or water.

Ingredients: Proprietary blend 50 mg. Extra virgin olive oil and wild Mediterranean oregano oil, P-73.

2- Oil of Oregano Oreganol, Super Strength



The producer of the drug writes: Oil of Oreganol Super Strength is a highly concentrated, extra strong solution of Oil of Oregano. It is emulsified by a special process for easier administration. The Super Strength oil of oregano is a highly concentrated concentration of oil of oregano suitable primarily for physicians. It is 300% more concentrated than the regular oil of oregano.

Oil of oregano is a completely natural substance derived from

wild oregano species. The plant grows in remote mountainous regions free of pollution. Only the leaves of the flowering plant are used which are picked precisely when the plant is highest in essential oil. The oil is extracted via a completely natural process; no chemicals or solvents are used. The oil is the source of virtually all of the plant's active ingredients.

Directions: Use as needed, one or several drops daily.

Ingredients: The Finest Extra Virgin Olive Oil and Wild Oregano Oil.

3- Oreganol Antiseptic Skin Health Formula, Cream

The producer of the drug writes: Oreganol Antiseptic Skin Health Formula Cream is the only researched, tested wild oregano and spice extract for boosting immunity and supporting respiratory health. Research shows that spice extracts kills germs, including bacteria, molds, yeasts, and fungi. Oregacyn is com pletely edible and is made from natural spices and herbs, including proprietary P73 wild oregano blend. Oregacyn products are for anti-fungal, anti-viral, anti-bacterial, anti-parasitic and anti-spasmatic uses.



Directions: Apply topically as a moisturizing, rejuvenating cream. A powerful rejuvenating formula containing propolis, essential oils, and wild honey. Great for all skin types, is ideal for sunburn, dry/chapped skin, bug bites, burns, cuts, abrasions and other skin disorders. Ideal for maintaining skin health.

Ingredients: P73 wild oregano blend, wild mountainous sage, cumin (high mountain blend).

4- Oregano Oil - RX
Advanced High Purity Formula



The producer of the drug writes: Our Wild Mediterranean oregano oil is extremely high in the active ingredient Carvacrol at a minimum of 79.27%. Oregano is a natural antiseptic. Our formula is made from the finest organic all natural ingredients, is non-toxic, safe and effective. Contains no artificial ingredients, filers, chemicals or toxic substances. Only the leaves of the flowering plant are used which are picked precisely when the plant is highest in essential oil content. The oil is extracted via a completely natural process. It is 300%

Test of purity

Suggestion: The percent of oil contents could be used as a test for purity.

Economy



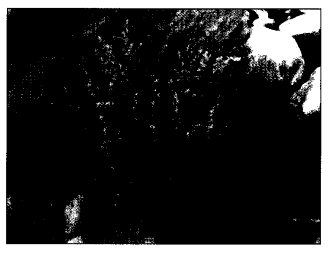
Transportation: The plant is transported from the field after drying and packing in bags by cars to other cities especially Cairo and Alexandria to be sold in the markets.

Cultivation and it's economical impact: *Origanum syriacum* L. is an endangered and endemic plant and is widely used in traditional medicine. So, attention to its cultivation should be given. This will prevent overcollection and may also be an important source for hard currency (in case of exportation). The cultivated plant will be also a good supply source for pharmaceutical companies.

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مؤسسة الكويت للتقدم العلمى، الكويت (**١٩٩٤**).

البردقوش

البردقوش البرى (الزعتر السيناوى) نبات عشبى تحت شجيرى دائم الخضرة، يتبع العائلة الشفوية، وله رائحة عطرية مميزة (رائحة الزعتر). وينمو النبات فى سيناء، خاصة المناطق الجبلية بجنوب سيناء والمعروفة باعتدال درجة حرارتها وجفافها. ويعد تحت النوع الذى ينمو فى سيناء من النباتات المتوطنة فى مصر.

ويعد النبات من النباتات المهددة بالانقراض، حيث أنه نادر الانتشار فى المناطق الصخرية الجبلية بسيناء، ويتعرض لعمليات الجمع الجائر حيث يستخدم فى العلاج الشعبى على هيئة شاى ساخن، ومن هذا المنطلق فالنبات يحتاج الى المحافظة عليه، وصونه عن طريق إكثاره فى الموقع أو خارجه.

والنبات معروف منذ القدم وقد ذكر فى الإنجيل لما له من تأثيرات فى تنقية الجسم من البثور، كما يستخدم فى الأمراض الصدرية والأزمات الربوية، و معروف أيضا كأحد التوابل الشائعة الاستخدام وكملطف ومسكن للأ؟م.

وقد ذكر فى الطب الشعبى لعلاج الروماتيزم وكمطهر وملطف ومدر للبول وكطارد للبلغم وكمهدئ وكمقو عام.

ومن أهم التأثيرات العلاجية والفارماكولوجية للنبات أن مغلى الأزهار والأوراق له نكهة قوية ويستخدم بمعرفة العشابين فى علاج الأمراض الصدرية ويخلط عادة مع غيره لعلاج الأزمات الربوية والتهابات الشعب الهوائية، ويستخدم النبات على هيئة مغلى للأوراق الجافة كشاى ساخن ويؤخذ عن طريق الفم.

وتوجد مستحضرات من هذا النوع (وليس تحت النوع المتوطن فى مصر) فى بلدان أخرى، عبارة عن الزيت المستخرج من النباتات الموجودة فى المناطق الجبلية.

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Teucrium polium	الجعدة
Pluchea dioscoridis	البرنوف
Solenostemma arghel	الحرجل